

ANNUAL REGISTER

OF THE

UNITED STATES NAVAL ACADEMY,

ANNAPOLIS, MD.

ACADEMIC YEAR OF 1890-'91.



WASHINGTON:
GOVERNMENT PRINTING OFFICE
1891.



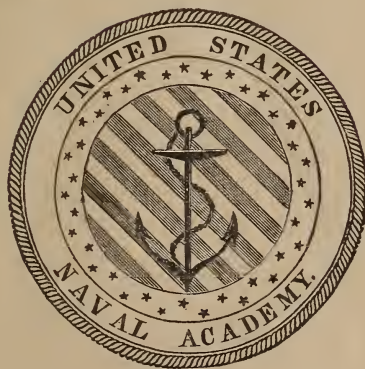
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CONTENTS.

	Page.
HISTORICAL SKETCH	5
SUPERINTENDENTS	8
BOARD OF VISITORS	9
ACADEMIC CALENDAR	10
CALENDAR, 1890-'91	11
OFFICERS ATTACHED TO THE ACADEMIC STAFF	12
OFFICERS NOT ATTACHED TO THE ACADEMIC STAFF.....	15
ACADEMIC BOARD	15
CADET OFFICERS	16
PRACTICE CRUISE, 1890.....	16
CADETS, WITH RELATIVE STANDING IN CLASSES	19
NUMERICAL SUMMARY	35
APPOINTMENTS, DISCHARGES, RESIGNATIONS, ETC.....	36
MERIT ROLLS, 1889-'90.....	39
REQUISITES FOR ADMISSION	53
COURSE OF INSTRUCTION	59
ASSIGNMENT OF TIME	73
PROGRAMME OF RECITATIONS	74
TABLE OF COEFFICIENTS	75
COURSE OF PRACTICAL INSTRUCTION.....	76
PROGRAMME OF PRACTICAL INSTRUCTION	78
SUMMARY OF PRACTICAL INSTRUCTION.....	83

THE UNITED STATES NAVAL ACADEMY.

FORTY-SIXTH ACADEMIC YEAR.*

The United States Naval Academy was founded in 1845 by the Hon. George Bancroft, Secretary of the Navy, in the administration of President James K. Polk. It was formally opened October 10 of that year under the name of the Naval School, with Commander Franklin Buchanan as superintendent. It was placed at Annapolis, Md., on the land occupied by Fort Severn, which was given up by the War Department for the purpose. The course was fixed at five years, of which only the first year and the last were spent at the school, the intervening three years being passed at sea. This arrangement was not strictly adhered to, the exigencies of the service making it necessary, in many cases, to shorten the period of study. In January, 1846, four months after the opening of the school, the students consisted of 36 midshipmen of the date of 1840, who were preparing for the examination for promotion; 13 of the date of 1841, who were to remain until drafted for service at sea, and 7 acting midshipmen, appointed after September of the previous year. The midshipmen of the date of 1840 were the first to be graduated, finishing their limited course in July, 1846, and they were followed in order by the subsequent dates until the reorganization of the school in 1850.

In September, 1849, the following board was appointed to revise the plan and the regulations of the Naval School:

Commander William B. Shubrick,
Commander Franklin Buchanan,
Commander Samuel F. Du Pont,
Commander George P. Upshur,
Surgeon W. S. W. Ruschenberger,
Professor William Chauvenet,
Captain Henry Brewerton, U. S. Army.

The plan reported by the board was approved, and went into operation July 1, 1850. The new organization provided for a course of seven years, the first two and the last two at the school and the three intermediate years at sea. The school was placed under the supervision of the Bureau of Ordnance and Hydrography, and its name was changed to the United States Naval Academy. The corps of professors was enlarged, the course was extended, and the system of separate departments with executive heads was fully adopted. It was provided that a board of visitors should make an annual inspection of the Academy and report upon its condition to the Secretary of the Navy. A suitable vessel was attached to the Academy as a practice ship, and the annual practice cruises were begun.

After the system had been in operation a year new changes were proposed, and the recommendations of the academic board on the subject were referred to the board of examiners for the year 1851, composed of the following-named officers:

Commodore David Conner,
Captain Samuel L. Breese,
Commander C. K. Stribling,
Commander A. Bigelow,
Commander Franklin Buchanan,
Lieutenant Thomas T. Craven.

* The number of the academic year was first printed in the Annual Register of 1865-'66, and was reckoned from the reorganization of the Naval School in 1850, when its name was changed to the United States Naval Academy. The number is now amended by the addition of five years, thus reckoning from 1845, the year in which the Academy was founded and formally opened.

The change recommended by the board of examiners, and adopted by the Department, consisted mainly in leaving out the requirement of three years of sea service in the middle of the course, thus making the four years of study consecutive. The practice cruise supplied the place of the omitted sea service, and gave better opportunities of training. The change went into operation in November, 1851, together with other improvements recommended by the board. This system has been continued, with some slight modifications, to the present time. The first class to receive the benefit of it was that which entered in 1851. Six members of this class completed the course in three years, and were graduated in June, 1854; the rest of the class followed in 1855.

In May, 1861, on the outbreak of the war, the Academy was removed to Newport, R. I. The three upper classes were detached and ordered to sea, and the remaining acting midshipmen were quartered in the Atlantic House and on board the frigates *Constitution* and *Santee*. In the summer of 1865 the Academy was moved back to Annapolis, where it has since remained.

When the Bureau of Navigation was established, July 5, 1862, the Academy was placed under its supervision; March 1, 1867, it was placed under the direct care and supervision of the Navy Department, the administrative routine and financial management being still conducted through the Bureau. On the 11th of March, 1869, this official connection with the Bureau ceased, but was renewed by the general order of the Navy Department issued June 25, 1889.

The term of the academic course was changed by law, March 3, 1873, from four to six years. The change took effect with the class that entered in the following summer.

In 1866 a class of acting third assistant engineers was ordered to the Academy for instruction. The course embraced the subjects of steam engineering, mechanism, chemistry, mechanics, and practical exercises with the steam engine and in the machine shop. This class was graduated in June, 1868, together with two cadet engineers who had entered the Academy in 1867. After an interval of four years, in October, 1871, a new class of cadet engineers was admitted. This class followed a two years' course, somewhat more extended than that of the class of 1868, and was graduated in 1873. In 1872 and in 1873 new classes were admitted, the first of which left the Academy in 1874 and the second in 1875. By an act of Congress, approved February 24, 1874, the course of instruction for cadet engineers was made four years instead of two; the new provision was first applied to the class entering the Academy in the year 1874. This class was graduated in June, 1878.

By an act of Congress, approved August 5, 1882, it was provided that from that date "there shall be no appointments of cadet-midshipmen or cadet-engineers at the Naval Academy, but in lieu thereof naval cadets shall be appointed from each Congressional district and at large, as now provided by law for cadet-midshipmen, and all the undergraduates at the Naval Academy shall hereafter be designated and called 'naval cadets;' and, from those who successfully complete the six years' course appointments shall hereafter be made as it is necessary to fill vacancies in the lower grades of the line and Engineer Corps of the Navy and of the Marine Corps: *And provided further*, That no greater number of appointments into these grades shall be made each year than shall equal the number of vacancies which has occurred in the same grades during the preceding year; such appointments to be made from the graduates of the year, at the conclusion of their six years' course, in the order of merit, as determined by the academic board of the Naval Academy; the assignment to the various corps to be made by the Secretary of the Navy upon the recommendation of the academic board. But nothing herein contained shall reduce the number of appointments from such graduates below ten in each year, nor deprive of such appointment any graduate who may complete the six years' course during the year eighteen hundred and eighty-two. And if there be a surplus of graduates, those who do not receive such appointment shall be given a certificate of graduation, an honor-

able discharge, and one year's sea pay, as now provided by law for cadet-midshipmen; and so much of section fifteen hundred and twenty-one of the Revised Statutes as is inconsistent herewith is hereby repealed.

"That any cadet whose position in his class entitles him to be retained in the service may, upon his own application, be honorably discharged at the end of four years' course at the Naval Academy, with a proper certificate of graduation."

The act of Congress, approved March 2, 1889, provides that "the Academic Board of the Naval Academy shall, on or before the thirtieth day of September in each year, separate the first class of naval cadets then commencing their fourth year into two divisions, as they may have shown special aptitude for the duties of their respective corps, in the proportion which the aggregate number of vacancies occurring in the preceding fiscal year ending on the thirtieth day of June in the lowest grades of commissioned officers of the line of the Navy and Marine Corps of the Navy shall bear to the number of vacancies to be supplied from the Academy occurring during the same period in the lowest grade of commissioned officers of the engineer corps of the Navy; and the cadets so assigned to the line and Marine Corps division of the first class shall thereafter pursue a course of study arranged to fit them for service in the line of the Navy, and the cadets so assigned to the Engineer Corps division of the first class shall thereafter pursue a separate course of study arranged to fit them for service in the Engineer Corps of the Navy, and the cadets shall thereafter, and until final graduation, at the end of their six years' course, take rank by merit with those in the same division, according to the merit marks; and from the final graduates of the line and Marine Corps division, at the end of their six years' course, appointments shall be made hereafter as it shall be necessary to fill vacancies in the lowest grades of commissioned officers of the line of the Navy and Marine Corps; and the vacancies in the lowest grades of the commissioned officers of the Engineer Corps of the Navy shall be filled in like manner by appointments from the final graduates of the Engineer division at the end of their six years' course: *Provided*, That no greater number of appointments into the said lowest grades of commissioned officers shall be made each year than shall equal the number of vacancies which shall have occurred in the same grades during the fiscal year then current; such appointments to be made from the final graduates of the year, in the order of merit as determined by the Academic Board of the Naval Academy, the assignment to be made by the Secretary of the Navy upon the recommendation of the Academic Board at the conclusion of the fiscal year then current; but nothing contained herein or in the naval appropriation act of August fifth, eighteen hundred and eighty-two, shall reduce the number of appointments of final graduates at the end of their six years' course below twelve in each year to the line of the Navy, and not less than two shall be appointed annually to the Engineer Corps of the Navy, nor less than one annually to the Marine Corps; and if the number of vacancies in the lowest grades aforesaid, occurring in any year shall be greater than the number of final graduates of that year, the surplus vacancies shall be filled from the final graduates of following years, as they shall become available; * * * *

"That after the fourth day of March, eighteen hundred and eighty-nine, the minimum age of admission of cadets to the Academy shall be fifteen years and the maximum age twenty years."

SUPERINTENDENTS
OF THE
UNITED STATES NAVAL ACADEMY.

Assumed command:

Sept. 3, 1845.—Commander Franklin Buchanan.
Mar. 15, 1847.—Commander George P. Upshur.
July 1, 1850.—Commander Cornelius K. Stribling.
Nov. 1, 1853.—Commander Louis M. Goldsborough.
Sept. 15, 1857.—Captain George S. Blake.
Sept. 9, 1865.—Rear-Admiral David D. Porter.
Dec. 1, 1869.—Commodore John L. Worden.
Sept. 22, 1874.—Rear-Admiral C. R. P. Rodgers.
July 1, 1878.—Commodore Foxhall A. Parker.
Aug. 2, 1879.—Rear-Admiral George B. Balch.
June 13, 1881.—Rear-Admiral C. R. P. Rodgers.
Nov. 14, 1881.—Captain F. M. Ramsay.
Sept. 9, 1886.—Commander W. T. Sampson.
June 30, 1890.—Captain R. L. Phythian.

BOARD OF VISITORS, JUNE, 1890.

Rear-Admiral L. A. KIMBERLY, U. S. Navy, *President*.

Hon. J. C. S. BLACKBURN, U. S. Senate, *Vice President*.

Hon. EUGENE HALE.....	U. S. Senate.
Hon. C. A. BOUTELLE.....	U. S. House of Representatives.
Hon. W. C. WALLACE.....	U. S. House of Representatives.
Hon. H. W. RUSK.....	U. S. House of Representatives.
Hon. MARSHALL M. MURDOCK.....	Wichita, Kansas.
Hon. WILLIAM A. NORTHCOTT.....	Greenville, Illinois.
Hon. H. W. ELLIOTT.....	Newcastle, Indiana.
Hon. J. H. GALLINGER.....	Concord, New Hampshire.
Hon. W. STUART WALCOTT.....	Utica, New York.
Hon. A. W. CAMPBELL.....	Wheeling, West Virginia.

ACADEMIC CALENDAR.

1890-1891.

1890.

Oct. 1.—Beginning of first term Wednesday.

1891.

Jan. 26-31.—Semi-annual examination Monday-Saturday.

Jan. 31.—End of first term Saturday.

June 1-6.—Annual examination Monday-Saturday.

June 6.—End of academic year, 1890-'91 Saturday.

May 15.—Examination of candidates for admission as naval
cadets Friday.

Sept. 1.—Examination of candidates for admission as naval
cadets Tuesday.

Oct. 1.—Beginning of first term, 1891-'92 Thursday.

The academic months end on the following days:

1890-1891.

October	Nov. 1	February	Feb. 25
November	Nov. 29	March	Mar. 25
December	Dec. 27	April	Apr. 25
January	Jan. 24	May	May 23

1891-1892.

October	Oct. 31	December	Dec. 26
November	Nov. 28	January	Jan. 23

CALENDAR FOR 1890-91.

SEPTEMBER.							MARCH.						
Sun.	M.	T.	W.	T.	F.	Sat.	Sun.	M.	T.	W.	T.	F.	Sat.
---	1	2	3	4	5	6	1	2	3	4	5	6	7
7	8	9	10	11	12	13	8	9	10	11	12	13	14
14	15	16	17	18	19	20	15	16	17	18	19	20	21
21	22	23	24	25	26	27	22	23	24	25	26	27	28
28	29	30	---	---	---	---	29	30	31	---	---	---	---
OCTOBER.							APRIL.						
---	---	---	1	2	3	4	---	---	---	1	2	3	4
5	6	7	8	9	10	11	5	6	7	8	9	10	11
12	13	14	15	16	17	18	12	13	14	15	16	17	18
19	20	21	22	23	24	25	19	20	21	22	23	24	25
26	27	28	29	30	31	---	26	27	28	29	30	---	---
NOVEMBER.							MAY.						
---	---	---	---	---	---	1	---	---	---	---	---	1	2
2	3	4	5	6	7	8	3	4	5	6	7	8	9
9	10	11	12	13	14	15	10	11	12	13	14	15	16
16	17	18	19	20	21	22	17	18	19	20	21	22	23
23	24	25	26	27	28	29	24	25	26	27	28	29	30
30	---	---	---	---	---	---	31	---	---	---	---	---	---
DECEMBER.							JUNE.						
---	1	2	3	4	5	6	---	1	2	3	4	5	6
7	8	9	10	11	12	13	7	8	9	10	11	12	13
14	15	16	17	18	19	20	14	15	16	17	18	19	20
21	22	23	24	25	26	27	21	22	23	24	25	26	27
28	29	30	31	---	---	---	28	29	30	---	---	---	---
JANUARY.							SEPTEMBER.						
---	---	---	---	1	2	3	---	---	1	2	3	4	5
4	5	6	7	8	9	10	6	7	8	9	10	11	12
11	12	13	14	15	16	17	13	14	15	16	17	18	19
18	19	20	21	22	23	24	20	21	22	23	24	25	26
25	26	27	28	29	30	31	27	28	29	---	---	---	---
FEBRUARY.							OCTOBER.						
1	2	3	4	5	6	7	---	---	---	---	1	2	3
8	9	10	11	12	13	14	4	5	6	7	8	9	10
15	16	17	18	19	20	21	11	12	13	14	15	16	17
22	23	24	25	26	27	28	18	19	20	21	22	23	24
---	---	---	---	---	---	---	25	26	27	28	29	30	31

OFFICERS

ATTACHED TO THE

UNITED STATES NAVAL ACADEMY.

SUPERINTENDENT,

CAPTAIN R. L. PHYTHIAN.

Assistant to the Superintendent in charge of Buildings and Grounds,

LIEUTENANT D. D. V. STUART.

Assistant to the Superintendent and Secretary of the Academic Board

LIEUTENANT G. A. MERRIAM.

Commandant of Cadets and Head of Department of Discipline,

COMMANDER HENRY GLASS.

LIEUTENANT-COMMANDER W. W. GILLPATRICK, *Assistant.*

LIEUTENANT J. M. HAWLEY, *Assistant and Drill Officer.*

LIEUTENANT W. P. POTTER, *Assistant and Drill Officer.*

LIEUTENANT G. B. HARBER, *Assistant and Drill Officer.*

LIEUTENANT C. D. GALLOWAY, *Assistant.*

LIEUTENANT ALEXANDER SHARP, JR., *Assistant and Drill Officer.*

SEAMANSHIP, NAVAL CONSTRUCTION, AND NAVAL TACTICS.

Head of Department,

COMMANDER C. D. SIGSBEE.

Assistants,

LIEUTENANT W. P. CLASON.

LIEUTENANT C. B. T. MOORE.

LIEUTENANT W. S. BENSON.

Instructor in Boxing, Swimming, and Gymnastics,

MATTHEW STROHM.

ORDNANCE AND GUNNERY.

Head of Department,

LIEUTENANT-COMMANDER C. S. SPERRY.

Assistants,

LIEUTENANT R. R. INGERSOLL,

LIEUTENANT H. C. GEARING.

Sword-Master,

A. J. CORBESIER.

Assistant Sword-Masters,

J. B. RETZ,

G. HEINTZ.

ASTRONOMY, NAVIGATION, AND SURVEYING.

Head of Department,

LIEUTENANT C. G. BOWMAN.

Assistants,

LIEUTENANT U. R. HARRIS,

LIEUTENANT W. F. LOW,

LIEUTENANT EDWARD LLOYD, jr.

STEAM ENGINEERING.

Head of Department,

CHIEF ENGINEER H. W. FITCH.

Assistants,

PASSED ASSISTANT ENGINEER J. K. BARTON,

PASSED ASSISTANT ENGINEER R. G. DENIG,

PASSED ASSISTANT ENGINEER G. S. WILLITTS,

ASSISTANT ENGINEER B. C. SAMPSON.

MECHANICS AND APPLIED MATHEMATICS.

Head of Department,

LIEUTENANT-COMMANDER J. P. MERRELL.

Assistants,

LIEUTENANT T. B. HOWARD,

ENSIGN JOHN HOOD,

ENSIGN C. M. KNEPPER.

PHYSICS AND CHEMISTRY.

Head of Department,

PROFESSOR N. M. TERRY, A. M., PH. D.

Assistants,

LIEUTENANT W. G. CUTLER,
 LIEUTENANT B. T. WALLING,
 LIEUTENANT O. G. DODGE,
 LIEUTENANT R. H. MINER,
 PROFESSOR C. R. SANGER, A. M., PH. D.

MATHEMATICS.

Head of Department,

LIEUTENANT-COMMANDER HARRY KNOX.

Assistants,

LIEUTENANT JOHN GARVIN,
 LIEUTENANT J. M. ORCHARD,
 ENSIGN H. G. DRESEL,
 ENSIGN HARRY PHELPS,
 ENSIGN C. S. WILLIAMS.

ENGLISH STUDIES, HISTORY, AND LAW.

Head of Department,

COMMANDER J. E. CRAIG.

Assistants,

LIEUTENANT J. B. MILTON,
 LIEUTENANT J. C. CRESAP,
 LIEUTENANT E. B. UNDERWOOD,
 PROFESSOR W. W. FAY, A. M.

MODERN LANGUAGES.

Head of Department,

LIEUTENANT ROBERT G. PECK.

Assistants,

LIEUTENANT J. T. SMITH,
 PROFESSOR L. F. PRUD'HOMME, A. M.,
 PROFESSOR JULES LEROUX,
 ASSISTANT PROFESSOR HIPPOLYTE DALMON,
 ASSISTANT PROFESSOR HENRI MARION,
 ASSISTANT PROFESSOR SAMUEL GARNER, PH. D.

MECHANICAL DRAWING.

Head of Department,

LIEUTENANT H. O. RITTENHOUSE.

Assistants,

PROFESSOR MARSHALL OLIVER,
 ASSISTANT PROFESSOR C. F. BLAUVELT.

PHYSIOLOGY AND HYGIENE.

Head of Department,

MEDICAL INSPECTOR B. H. KIDDER, M. D.

Assistants,

SURGEON G. E. H. HARMON, M. D.,
 PASSED ASSISTANT SURGEON PHILIP LEACH, M. D.*
 PASSED ASSISTANT SURGEON L. W. CURTIS, M. D.

Professor of Mathematics,

W. W. JOHNSON, A. M.,

OFFICERS NOT ATTACHED TO THE ACADEMIC STAFF.

LIEUTENANT W. H. REEDER, *in Charge of Ships.*
 ASSISTANT SURGEON S. G. EVANS, M. D.
 PAY DIRECTOR J. D. MURRAY, *Pay Officer.*
 PAY DIRECTOR CASPAR SCHENCK, *Commissary and General Storekeeper.*
 CHAPLAIN H. H. CLARK.
 ASSISTANT PROFESSOR A. N. BROWN, *Librarian.*
 J. M. SPENCER, *Assistant Librarian.*
 R. M. CHASE, *Secretary.*

Attached to the Ships,

BOATSWAIN J. S. SINCLAIR,
 GUNNER R. SOMMERS,
 CARPENTER G. W. CONOVER.

MATES.

Attached to the Santee, the Wyoming, and the Phlox,

SAMUEL GEE,	B. G. PERRY,
C. J. MURPHY,	W. G. SMITH.

MARINE OFFICERS.

CAPTAIN H. A. BARTLETT, *Commanding Marines,*
 CAPTAIN J. M. T. YOUNG,
 FIRST LIEUTENANT H. K. WHITE.

ACADEMIC BOARD.

THE SUPERINTENDENT.

THE COMMANDANT OF CADETS.

THE HEAD OF THE DEPARTMENT OF SEAMANSHIP, NAVAL CONSTRUCTION, AND NAVAL TACTICS.

THE HEAD OF THE DEPARTMENT OF ORDNANCE AND GUNNERY.

THE HEAD OF THE DEPARTMENT OF ASTRONOMY, NAVIGATION, AND SURVEYING.

THE HEAD OF THE DEPARTMENT OF STEAM ENGINEERING.

THE HEAD OF THE DEPARTMENT OF MECHANICS AND APPLIED MATHEMATICS.

THE HEAD OF THE DEPARTMENT OF PHYSICS AND CHEMISTRY.

THE HEAD OF THE DEPARTMENT OF MATHEMATICS.

THE HEAD OF THE DEPARTMENT OF ENGLISH STUDIES, HISTORY, AND LAW.

THE HEAD OF THE DEPARTMENT OF MODERN LANGUAGES.

THE HEAD OF THE DEPARTMENT OF MECHANICAL DRAWING.

THE HEAD OF THE DEPARTMENT OF PHYSIOLOGY AND HYGIENE.

*Also in charge physical training of cadets.

CADET OFFICERS.

CADET LIEUTENANT-COMMANDER,

F. B. ZAHM.

CADET LIEUTENANT AND ADJUTANT,

R. R. BELKNAP.

CADET LIEUTENANTS,

N. E. IRWIN,
A. L. WILLARD,R. J. HARTUNG,
J. G. F. MOALE.

CADET MASTERS,

H. G. GILLMOR,
H. G. SMITH,C. D. STEARNS,
R. L. FLOWERS.

CADET ENSIGNS,

R. M. WATT,
E. T. POLLOCK,W. EVANS,
E. THEALL.

CADET PETTY OFFICERS OF THE FIRST CLASS,

<i>First Division.</i>	<i>Second Division.</i>	<i>Third Division.</i>	<i>Fourth Division.</i>
SMITH, H. E.,	ALTHOUSE,	SENN,	MACFARLAND,
McKELVY,	BIERER,	KUENZLI,	McLEMORE,
KOCHERSPERGER.	LEIGH.	BLAMER.	HOUGH.

CADET PETTY OFFICERS OF THE SECOND CLASS,

MCDONALD,	BEURET,	MCNAMEE,	DAY,
EVANS,	HINES,	DAWSON,	HUFFINGTON,
MOSES.	LOW.	HUSSEY.	HOBLITZELLE.

SUMMER CRUISE, 1890.

OFFICERS AND NAVAL CADETS.

UNITED STATES PRACTICE SHIP CONSTELLATION.

June 9 to August 30.

COMMANDER HENRY GLASS, *Commanding.*
 LIEUTENANT-COMMANDER W. W. GILLPATRICK,
Executive Officer.
 LIEUTENANT G. B. HARBER, *Instructor in Navigation.*
 LIEUTENANT W. P. CLASON, *Navigator.*
 LIEUTENANT W. G. CUTLER, *Watch Officer.*
 LIEUTENANT DAVID DANIELS, *Watch Officer.*

LIEUTENANT O. G. DODGE, *Watch Officer.*
 ENSIGN R. H. MINER, *Watch Officer.*
 ENSIGN H. G. DRESEL, *Watch Officer.*
 SURGEON B. S. MACKIE.
 ASSISTANT SURGEON C. H. T. LOWNDES.
 PAYMASTER I. GOODWIN HOBBS.
 CHAPLAIN E. K. RAWSON.

NAVAL CADETS.

First Class.

Allen,	Hartung,	Richards,
Althouse,	Hough,	Robinson, <i>k</i>
Belknap,	Irwin,	Senn,
Bierer,	Kochersperger,	Shepard, <i>f</i>
Blamer,	Kuenzli,	Smith, H. E.,
Blount,	Lane,	Smith, H. G.,
Brotherton,	Leigh,	Smith, L. G.,
Caldwell,	Macfarland,	Stearns, C. D.,
Carter,	McKelvy,	Sypher,
Christy,	McLemore, <i>h</i>	Theall,
Emrich, <i>f</i>	Moale,	Watt,
Evans,	Ninde,	Willard,
Flowers,	Nire,	Williams,
Ferd,	Pollock,	Zahm.
Gillmor,	Preston,	
Gross,	Reed, <i>f</i>	

Third Class.

Asbury,	Gise,	Powell,
Bagley,	Groesbeck,	Powelson,
Baird,	Groff,	Pratt,
Berry,	Hains, .	Price, <i>m</i>
Bisset,	Holsinger,	Procter,
Brady,	Hooker,	Read,
Campbell,	Jackson,	Ryan, J. P. J.,
Carver,	Jones, L. B., <i>m</i>	Scott,
Chadwick,	Kellogg,	Shaw,
Clark,	Lang,	Stearns, E. C.,
Coleman,	Logan,	Sticht,
Cook, <i>m</i>	Magill,	Sturdevant,
Crocker,	McKethan,	Townsend, <i>m</i>
Crosley,	Montgomery,	Trench,
Cruse,	Morris,	Upham,
Doddridge,	Nutting,	Valentine,
Douglas,	Parker,	Ward,
Elder,	Pearson,	Whitman,
Feild,	Perry,	Wilson,
Fewell,	Peugnet,	Wishart.
Fitch,	Potter,	

*Fourth Class.*Ryan, G. W. *m n*

NAVAL CADETS RETAINED AT THE ACADEMY FOR MACHINE SHOP AND OTHER PRACTICAL INSTRUCTION.

First Class—Engineer Division.

Emrich, <i>f</i>	Reed, <i>f</i>	Rowen,
Laws,	Robison,	Shepard, <i>f</i>
McGrann,		

Second Class.

Allen, C.,	Blakely,	Davis,
Arison,	Borden,	Davison,
Ball,	Breckinridge,	Dawson,
Bannon,	Campbell,	Day,
Beuret,	Crank,	Dennett,

f Detached from practice ship June 28, on assignment to Engineer Division.*h* Transferred sick to Naval Academy July 26.*k* Granted sick leave by Department July 15.*m* Joined ship on June 14.*n* Granted leave August 9.

Second Class—Continued.

Evans,	Mallison,	Rodney,
Ferguson,	Mather,	Russell,
Gamble,	McCormick,	Sawyer, F. L.,
Gibbs,	McDonald,	Sawyer, J. G.,
Hasbrouck,	McNamee,	Sheehan,
Hines,	Moses,	Stirling,
Hoblitzelle,	Myers,	Stitt,
Huffington,	Payne,	Stopford.
Hussey,	Pollard,	Symington,
Jewell,	Pollock,	Thompson,
Jones, B. E.,	Porter,	Traut,
Kellogg, E. S.,	Pringle,	Wedekind,
Low,	Rice,	Zillman.
Macklin,		

Fourth Class

Batts,	Greer,	Roberts, T. G.,
Berryman,	Hull,	Sandoz,
Blandy,	Jones, L. B.,	Scott,
Chappell,	Kavanagh,	Sellers,
Chester,	Lane,	Snow,
Churchill,	Lyon,	Spear,
Cooper,	McCormack,	Talcott,
De Lany,	McLean,	Tolfree,
Emery,	Osborn,	Turpin,
Fullinwider,	Perkins,	Whitted,
Gelm,	Ridgely,	Winship.
Graham,	Robert, W. P.,	

SUMMARY.

On board United States Practice Ship <i>Constellation</i>	
Remaining at the Academy.....	
Total	

SYNOPSIS OF THE CRUISE, 1890.

CONSTELLATION.

Cadets, first and third classes, embarked June 9.
 Sailed from Annapolis June 11.
 Passed Cape Henry, bound to New London, Conn., June 20.
 Arrived at New London, Conn., June 26.
 Inspected by Secretary of the Navy, at New London, July 6.
 Cruised in Long Island Sound and vicinity until August 18.
 Sailed from New London for Annapolis August 18.
 Passed Cape Henry, bound to Annapolis, August 23.
 Arrived at Annapolis August 28.
 Cadets disembarked August 30.

RELATIVE STANDING OF NAVAL CADETS.

P Physically disqualified for the naval service.

* Received 85 per cent. of the multiple.

† Found deficient, allowed a reëxamination, passed, and continued with class.

‡ Found deficient, allowed a reëxamination, again deficient, and recommended to be dropped.

§ Found deficient, and recommended to be dropped.

¶ Retained in next lower class.

a Absent from examination.

b Deficient.

d Dismissed.

e Selected for Engineer Division.

r Resigned.

Class of naval cadets appointed 1885, performing required service afloat.

Order of merit.	Name.	State from which appointed.	Date of admission.
*1	Hobson, Richmond Pearson	Alabama	May 21, 1885
*2	Rock, George Henry	Michigan	May 20, 1885
*3	Hoff, Arthur Bainbridge	At large	Sept. 28, 1885
4	Twining, Nathan Crook	Wisconsin	Sept. 4, 1885
5	Hutchison, Benjamin Franklin	Missouri	Sept. 5, 1885
6	Pratt, William Veazie	Maine	Sept. 9, 1885
7	Kittelle, Sumner Ely	New York	May 19, 1885
8	Marvell, George Ralph	Massachusetts	Sept. 7, 1885
9	Nulton, Louis McCoy	Virginia	Sept. 8, 1885
10	Lucas, Lewis Clark	Ohio	Sept. 9, 1885
11	Patton, John Bryson	South Carolina	May 21, 1885
12	Neumann, Bertram Stansbury	New Jersey	May 22, 1885
13	Long, Charles Grant	Massachusetts	Sept. 7, 1885
14	MacDougall, William Dugald	New York	May 19, 1885
15	Danforth, George Washington	Missouri	Sept. 7, 1885
16	Magruder, Thomas Pickett	Mississippi	Sept. 3, 1885
17	Lowndes, Edward Rutledge	Michigan	Sept. 29, 1885
18	de Steigner, Louis Rudolph	Ohio	Mar. 17, 1885
19	Bradshaw, George Brown	Texas	Sept. 4, 1885
20	Phelps, William Woodward	Maryland	May 19, 1885
21	Kaiser, Louis Anthony	Illinois	May 20, 1885
22	Offley, Cleland Nelson	Indiana	Sept. 5, 1885
23	Cole, William Carey	Illinois	Sept. 5, 1885
24	Mitchell, George Grant	Indiana	Sept. 7, 1885
25	Fuller, Ben Hebard	Michigan	May 22, 1885
26	Brand, Charles Augustine	Connecticut	Sept. 8, 1885
27	Williams, Philip	Vermont	Sept. 4, 1885
28	Carney, Robert Ernest	Wisconsin	May 21, 1885
29	Terhune, Warren Jay	New Jersey	May 19, 1885
30	Dutton, Robert McMillan	California	Sept. 4, 1885
31	Harrison, William Kelley	Texas	May 23, 1885
32	Prochazka, Julius	Wisconsin	Sept. 7, 1885
33	Fermier, George Lucien	Indiana	May 21, 1885

Class appointed in 1886, performing require

Order of general merit.	Name.	State.	Date of admission.
*1	Ruhm, Thomas Francis	Tennessee	May 20, 1886
*2	Spear, Lawrence	Ohio	May 19, 1886
3	Coleman, Noah Tunncliff	New York	May 21, 1886
4	Schofield, Frank Herman	New York	May 21, 1886
5	Chase, Jehu Valentine	Louisiana	Sept. 28, 1886
6	Gartley, Alonzo	Iowa	May 23, 1886
7	Ziegemeier, Henry Joseph	Ohio	May 21, 1886
8	Davis, Cleland	Kentucky	May 22, 1886
9	Signor, Matt. Howland	Nebraska	May 21, 1886
10	Blankenship, John Millington	Virginia	May 20, 1886
11	Buck, William Henry	Mississippi	May 22, 1886
12	Taylor, Montgomery Meigs	At large	May 21, 1886
13	Ritter, Henry Snyder	Pennsylvania	May 25, 1886
14	Williams, George Washington	South Carolina	Sept. 28, 1886
15	Catlin, Albertus Wright	Minnesota	May 24, 1886
16	McVay, Charles Butler	Colorado	May 19, 1886
17	Vogelgesang, Charles Theodore	California	Sept. 6, 1886
18	Everhart, Lay Hampton	Alabama	May 20, 1886
19	Snow, William Alanson	Massachusetts	Sept. 4, 1886
20	Sullivan, Franklin Buchanan	At large	May 22, 1886
21	Bailey, Claude	Arkansas	Sept. 8, 1886
22	Neville, Wendell Cushing	Virginia	Sept. 13, 1886
23	Moses, Lawrence Henry	New York	Sept. 23, 1886
24	Dayton, John Havens	At large	Sept. 13, 1886
25	Bostwick, Lucius Allyn	Massachusetts	Sept. 7, 1886
26	Bond, Charles Otis	Iowa	Sept. 8, 1886
27	Radford, Cyrus Sugg	Kentucky	May 25, 1886
28	Treadwell, Thomas Conrad	Massachusetts	May 21, 1886
29	Moffett, William Adger	South Carolina	Sept. 6, 1886
30	Latimer, Julius Lane	West Virginia	Sept. 30, 1886
31	Edie, John Rufus	At large	May 19, 1886

Class appointed in 1886, performing require

Order of general merit.	Name.	State.	Date of admission.
1	Holmes, Urban Tigner	Arkansas	Sept. 13, 1886
2	Price, Claude Bernard	Mississippi	June 2, 1886
3	Dismukes, Doctor Eugene	do	May 21, 1886

vice afloat.—Line division, 31 members.

Age at date of admission.		Order of merit.									Number of demerits.	Sea service in practice ships.		Order of general merit.
Years.	Months.	Seamanship, ship-building, and naval architecture.	Ordnance and gunnery.	Astronomy, navigation, and surveying.	Least squares and strength of materials.	Physics and chemistry.	Physiology and hygiene.	International law.	Discipline.	Months.		Days.		
16	6	2	2	2	2	2	2	3	11	20	6	29	1	
15	6	1	1	1	1	1	1	5	7	13	6	29	2	
16	2	4	4	3	3	5	4	9	26	72	6	29	3	
17	4	3	8	5	7	3	6	22	4	7	6	29	4	
17	8	7	7	9	5	4	14	17	21	39	4	12	5	
16	7	5	3	7	6	8	23	17	9	17	6	29	6	
17	1	13	6	4	25	5	20	4	8	20	6	12	7	
16	6	14	9	13	14	9	6	8	23	52	6	29	8	
15	5	25	17	8	4	10	17	28	17	51	6	29	9	
17	9	10	14	11	9	7	12	10	10	20	6	29	10	
17	7	17	16	21	17	11	3	15	4	5	6	29	11	
16	7	6	15	25	22	21	9	13	20	49	6	29	12	
16	3	8	10	9	20	11	10	16	1	0	6	29	13	
17	1	19	27	12	18	29	26	13	27	70	4	12	14	
17	5	14	5	6	15	19	8	12	24	77	6	29	15	
17	7	22	12	16	31	26	18	7	2	3	3	29	16	
17	7	21	28	24	28	18	5	10	3	7	4	12	17	
16	5	10	19	14	13	30	31	30	15	22	6	29	18	
16	7	23	21	23	23	14	13	6	6	6	4	12	19	
14	10	12	12	15	10	13	10	19	30	142	5	29	20	
15	10	29	25	17	15	19	26	27	18	45	4	12	21	
16	11	17	11	17	29	16	16	21	13	22	4	12	22	
16	2	27	23	20	8	27	23	2	31	125	4	12	23	
17	11	16	18	19	11	15	22	19	24	57	4	12	24	
16	6	9	20	28	11	24	21	26	27	56	4	12	25	
15	9	28	25	25	20	22	14	25	16	25	3	4	26	
17	11	26	21	30	27	17	28	28	14	21	6	29	27	
16	11	30	30	28	24	23	19	23	22	47	6	29	28	
16	10	19	29	25	29	28	25	1	29	82	4	12	29	
17	11	24	23	21	18	25	29	24	11	19	4	12	30	
15	7	30	31	31	26	31	30	31	19	45	4	14	31	

service afloat.—Engineer division, 3 members.

Age at date of admission.		Order of merit.										Number of demerits.	Sea service in practice ships.		Order of general merit.
Years.	Months.	Naval construction.	Marine engines.	Designing machinery.	Fabrication.	Boilers.	Least squares and strength of materials.	Mechanics.	Chemistry and physics.	Physiology and hygiene.	Discipline.		Months.	Days.	
17	4	1	1	1	2	1	1	1	2	2	1	23	4	12	1
17	7	2	2	2	3	2	3	2	1	1	2	43	6	29	2
16	7	3	3	3	1	3	2	3	3	3	3	50	6	29	3

Relative standing of the First Class (52 members)

Order of annual merit.	Name.	State.	Date of admission.
40	Allen, David Van Horn	Tennessee	Sept. 6, 1887
†	Althouse, Adelbert	Illinois	May 21, 1887
7	Belknap, Reginald Rowan	Arkansas	Sept. 5, 1887
19	Bierer, Bion Barnett	Kansas	Sept. 24, 1887
*4	Blamer, De Witt	Iowa	May 19, 1887
†	Blount, Irving	Indiana	Sept. 6, 1887
30	Brotherton, William Daniel	Wisconsin	Sept. 6, 1887
24	Caldwell, Harry Handly	Illinois	Sept. 7, 1887
36	Carter, James Francis	Pennsylvania	Mar. 24, 1887
8	Christy, Harley Hannibal	Ohio	May 24, 1887
e22	Emrich, Charles Rulf	Illinois	May 19, 1887
16	Evans, Waldo	Kansas	Sept. 7, 1887
20	Flowers, Robert Lee	North Carolina	Sept. 7, 1887
†	Ford, William Howland	Iowa	Sept. 7, 1887
*2	Gillmor, Horatio Gonzalo	Wisconsin	Sept. 5, 1887
†	Gross, Louis Herman	Illinois	May 19, 1887
17	Hartung, Renwick John	Iowa	Sept. 6, 1887
23	Hough, Henry Hughes	Massachusetts	Sept. 6, 1887
10	Irwin, Noble Edward	Ohio	Sept. 29, 1887
†	Kochersperger, Frank Henry	Pennsylvania	May 20, 1886
12	Kuenzli, Henry Charles	Wisconsin	Sept. 6, 1887
25	Lane, Rufus Herman	Ohio	June 2, 1887
e38	Laws, George William	Iowa	May 21, 1887
32	Leigh, Richard Henry	Mississippi	Sept. 6, 1887
§	Lyle, Charles William	Virginia	Sept. 5, 1887
39	Macfarland, Horace Greeley	New York	Sept. 6, 1887
e27	McGrann, William Hugh	Tennessee	May 20, 1887
37	McKelvy, William Nepler	Pennsylvania	May 20, 1887
33	McLemore, Albert Sidney	Tennessee	May 23, 1887
26	Moale, John Gray Foster	California	Sept. 6, 1887
¶	Myers, John Twiggs	Georgia	Sept. 27, 1887
14	Ninde, Daniel Benjamin	Indiana	May 20, 1887
b	Nire, Kagekazu	Empire of Japan	May 21, 1887
11	Pollock, Edwin Taylor	Ohio	May 20, 1887
†	Preston, Charles Francis	Maryland	Sept. 6, 1887
e21	Reed, Milton Eugene	Iowa	Sept. 5, 1887
35	Richards, George	Ohio	Sept. 12, 1887
§	Robinson, Roby	Alabama	May 21, 1887
e6	Robison, John Keeler	Michigan	May 20, 1887
e13	Rowen, John Howard	Pennsylvania	Sept. 27, 1887
28	Senn, Thomas Jones	South Carolina	May 19, 1887
e29	Shepard, George Hugh	Wisconsin	Sept. 27, 1887
34	Smith, Harry Eaton	Ohio	May 20, 1887

at the annual examination, June, 1890.

Age at date of admission.		Order of merit.									Sea service in practice ships.		
Years.	Months.	Astronomy, navigation, and surveying.	Steam machinery, marine engines, and boilers.	Practical work in steam engineering.	Mechanics and applied mathematics.	Physics.	Modern languages.	Mechanical drawing.	Discipline.	Number of demerits.	Months.	Days.	Order of annual merit.
17	3	40	42	45	34	39	31	48	45	73	5	12	40
18	0	14	31	18	47	20	36	17	21	28	7	27	†
16	3	15	5	8	12	8	3	8	14	21	5	12	7
17	6	18	26	14	18	26	33	19	9	14	3	24	19
15	4	7	3	41	3	3	22	27	16	17	7	27	*4
17	6	20	35	34	44	44	32	45	47	73	5	12	†
15	11	20	21	15	34	33	38	36	34	45	5	12	30
14	7	44	19	42	24	23	14	37	37	50	5	12	24
18	0	30	32	23	33	41	39	43	43	75	7	27	36
16	8	9	8	17	9	11	25	12	24	42	7	27	8
16	8	24	18	34	31	19	17	21	41	69	5	11	22
17	10	11	16	27	15	13	29	28	35	49	5	12	16
16	10	22	19	11	20	29	23	30	23	32	5	2	20
15	7	32	43	19	45	46	26	32	8	12	5	12	†
17	8	5	2	5	1	2	7	15	15	28	5	12	*2
16	2	25	45	37	29	42	47	51	38	44	7	13	†
17	0	27	14	10	16	17	36	19	10	9	5	12	17
16	8	34	29	29	34	29	1	11	20	34	5	12	23
18	0	16	9	3	5	16	40	18	22	41	4	28	10
16	3	33	28	1	46	36	30	5	30	37	7	24	†
16	4	6	11	8	11	14	15	10	27	32	5	12	12
16	7	39	24	47	21	22	41	38	32	38	7	27	25
17	3	42	38	46	27	38	45	43	48	79	5	5	38
17	1	25	40	11	26	34	34	26	17	13	3	24	32
17	1	49	48	37	49	47	49	47	36	42	1	6	§
14	8	48	39	49	34	23	27	49	51	63	4	28	39
17	7	37	25	30	31	32	19	24	31	41	2	20	27
17	11	29	47	33	34	45	34	39	6	17	7	27	37
18	0	30	34	34	34	43	2	39	42	68	4	3	33
16	8	36	33	15	34	36	13	3	5	10	5	7	26
16	8	<i>a</i>	<i>a</i>	51	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	38	2	20	¶
16	10	13	17	23	13	15	10	2	33	51	7	27	14
17	8	<i>a</i>	<i>a</i>	22	<i>a</i>	<i>a</i>	<i>a</i>	31	19	30	7	27	<i>b</i>
16	7	7	12	31	10	12	16	34	13	15	4	28	11
16	4	37	46	40	34	49	20	22	18	23	5	9	†
17	10	35	21	2	30	25	20	4	7	11	3	10	21
15	7	41	43	47	25	31	46	15	49	87	3	24	35
16	0	² 46	² 47	31	² 47	50	48	46	39	48	6	12	§
16	6	3	10	27	7	7	4	28	12	25	5	5	6
16	8	28	7	13	8	9	43	1	44	70	2	20	13
15	5	18	36	50	17	26	41	50	29	37	7	27	28
15	9	23	27	52	18	28	18	42	50	113	1	22	29
17	5	45	40	7	42	35	50	7	28	32	7	27	34

Relative standing of the First Class (52 members)

Order of annual merit.	Name.	State.	Date of admission.
*3	Smith, Henry Gerrish	Ohio	Sept. 5, 1887
18	Smith, Lucien Greathouse	Illinois	June 3, 1887
9	Stearns, Clark Daniel	Michigan	Sept. 5, 1887
31	Sypher, Jay Hale	Arizona	Sept. 5, 1887
†	Theall, Elisha	New York	May 28, 1887
*5	Watt, Richard Morgan	Pennsylvania	Sept. 22, 1887
15	Willard, Arthur Lee	Missouri	Sept. 7, 1887
†	Williams, Dion	Ohio	July 16, 1887
*1	Zahn, Frank Baker	Pennsylvania	Sept. 5, 1887

b Deficient; continued with class.

at the annual examination, June, 1890—Continued.

Age at date of admission.		Order of merit.								Number of demerits.	Sea service in practice ships.		Order of annual merit.
Years.	Months.	Astronomy, navigation, and surveying.	Steam machinery, marine engines, and boilers.	Practical work in steam engineering.	Mechanics and applied mathematics.	Physics.	Modern languages.	Mechanical drawing.	Discipline.		Months.	Days.	
17	5	2	4	23	2	4	5	13	1	7	5	12	*3
17	6	16	23	19	22	17	11	25	11	16	7	27	18
17	8	12	15	4	13	9	8	14	3	9	5	12	9
16	6	45	29	23	27	20	24	34	46	70	5	12	31
14	5	43	48	44	42	48	44	32	40	54	7	27	†
15	3	4	6	37	6	5	11	9	1	3	5	12	*5
17	7	10	13	19	23	6	8	39	25	20	3	24	15
17	5	47	37	42	48	40	27	23	25	34	5	2	†
16	3	1	1	6	4	1	6	6	4	14	5	12	*1

Relative standing of the second class (54 members)

Order of annual merit.	Name.	State.	Date of admission.
†	Allen, Charles	Ohio	Mar. 15, 1888
33	Arison, Edgar Emmett.....	Pennsylvania	May 18, 1888
25	Ball, Walter	New York	Sept. 6, 1888
44	Bannon, Philip Michael	Maryland.....	May 21, 1888
*1	Beuret, John Dougal.....	Ohio	Sept. 7, 1888
*4	Blakely, John Russell Young.....	Pennsylvania.....	Sept. 29, 1888
	Borden, Thomas Sheppard.....	Louisiana.....	Sept. 25, 1888
†	Breckinridge, Joseph Cabell	Kentucky.....	Sept. 5, 1888
8	Campbell, Joseph Randolph	Wyoming.....	Sept. 29, 1888
34	Crank, Robert Kyle.....	Texas.....	Sept. 6, 1888
29	Davis, Austin Rockwell.....	Georgia.....	May 21, 1888
9	Davison, Gregory Caldwell.....	Missouri.....	May 22, 1888
*6	Dawson, William Charles	Missouri.....	Sept. 6, 1888
7	Day, George Calvin.....	Vermont.....	May 19, 1888
45	Dennett, Stanley Pullen	Maine.....	May 19, 1888
12	Evans, Holden A.....	Florida.....	Sept. 5, 1888
*3	Ferguson, Homer Lenoir.....	North Carolina	May 21, 1888
32	Gamble, Aaron Lichtenberger	Indiana.....	Sept. 5, 1888
46	Gibbs, Washington Dorsey	Mississippi.....	May 18, 1888
39	Hasbrouck, Raymond De Lancy	Idaho Territory.....	Sept. 25, 1888
23	Hines, John Fore	Kentucky.....	May 21, 1888
18	Hoblitzell, William Edward	Missouri.....	Sept. 6, 1888
13	Huffington, Howard Williams	Pennsylvania.....	May 19, 1888
11	Hussey, Charles Lincoln	New Hampshire.....	May 21, 1888
10	Jewell, Charles Theodore	At large	May 19, 1887
†	Jones, Beriah Elwood.....	Pennsylvania	May 19, 1888
41	Kellogg, Edward Stanley	New York	Sept. 5, 1888
22	Low, Theodore Henry.....	Connecticut.....	May 18, 1888
42	Macklin, Charles Fearn.....	New York	Sept. 25, 1888
40	Mallison, George.....	North Carolina	May 21, 1888
31	Mather, George Herbert	New Jersey.....	May 22, 1888
†	McCormick, Benjamin Bernard	New York	May 19, 1888
*2	McDonald, Joseph Ezekiel.....	Illinois.....	Sept. 7, 1888
*5	McNamee, Luke.....	Kansas.....	Sept. 6, 1888
27	Moses, Stanford Elwood	Georgia.....	Sept. 6, 1888
28	Payne, Fred Rounsville.....	New York	May 21, 1888
43	Pollard, Charles Teed, jr.....	Texas.....	Sept. 25, 1888
20	Pollock, Emmett Riddle	Illinois.....	May 18, 1888
17	Porter, John Singleton.....	Tennessee.....	Sept. 25, 1888
36	Pringle, Joel Roberts Poinsett.....	Illinois.....	Sept. 6, 1888
21	Rice, Arthur.....	Indiana.....	Sept. 7, 1888
†	Rodney, Warren	Texas.....	Sept. 6, 1888
†	Russell, John Henry, jr.....	At large	May 18, 1888
15	Sawyer, Frederick Lewis	Illinois.....	Sept. 6, 1888
†	Sawyer, Josiah Grigg.....	Illinois.....	May 19, 1888

at the annual examination, June, 1890.

Age at date of admission.		Order of merit.						Number of demerits.	Sea service in practice ships.		Order of annual merit.
Years.	Months.	Trigonometry, analytical geometry, and descriptive geometry.	Chemistry and physics.	English, history, and the Constitution.	French, Spanish, and German.	Mechanical drawing.	Discipline.		Months.	Days.	
17	11	40	49	37	40	6	34	72	4	17	†
15	2	35	34	42	9	41	36	82	4	17	33
16	1	17	15	38	35	30	47	148	1	27	25
16	2	49	44	39	53	30	28	54	4	17	44
17	7	1	1	2	3	1	24	49	1	27	*1
16	2	3	4	30	8	3	46	138	1	27	*4
16	6	39	29	13	14	29	32	71	1	27	24
16	6	43	53	27	32	53	39	83	1	27	†
16	6	12	2	12	16	5	23	53	1	27	8
16	8	44	30	19	12	32	49	179	1	27	34
16	9	26	16	40	30	12	50	158	4	17	29
17	0	6	8	8	32	15	16	28	4	17	9
17	5	9	12	1	1	28	27	51	1	27	6
16	6	8	5	6	28	13	14	32	4	17	7
15	11	46	46	52	44	45	8	33	4	17	45
16	9	13	21	5	18	39	19	9	1	27	12
15	2	4	7	4	2	16	25	51	4	17	*3
15	10	31	30	28	27	40	43	90	1	27	32
16	3	33	35	51	40	54	52	208	4	17	46
17	2	29	28	49	46	18	51	195	1	27	39
17	7	23	23	32	48	11	1	11	4	17	23
17	1	15	35	36	38	2	10	29	1	27	18
15	9	13	20	16	36	7	4	25	4	17	13
17	3	10	14	10	20	25	4	19	4	17	11
15	2	5	11	7	25	19	40	91	4	12	10
17	4	52	52	47	52	38	37	79	1	27	†
17	11	38	40	50	54	21	12	25	0	19	41
17	8	28	18	8	26	22	42	90	4	17	22
17	5	22	41	54	43	49	44	97	1	27	42
17	4	36	17	48	45	49	35	75	4	17	40
15	1	24	27	34	47	41	29	62	4	17	31
15	3	52	50	14	13	13	13	34	4	17	†
16	6	2	6	14	19	9	2	16	1	27	*2
17	5	7	10	3	9	10	21	42	1	27	*5
16	0	45	38	24	17	19	15	33	1	27	27
16	9	16	18	26	29	33	54	250	4	17	28
16	0	46	33	42	22	52	38	79	1	27	r43
15	5	21	37	23	5	37	26	51	4	17	20
15	8	11	9	22	36	25	47	149	1	27	17
15	7	41	43	35	7	47	29	76	1	27	36
17	3	33	42	18	22	4	10	25	1	27	21
17	1	54	50	46	49	51	33	72	1	27	†
15	6	31	47	40	51	36	20	35	2	20	†
17	4	30	3	10	21	22	9	28	1	27	15
16	11	48	48	53	50	25	7	21	4	17	†r

Relative standing of the second class (54 members)

Order of annual merit.	Name.	State.	Date of admission.
19	Sheehan, James.....	New York.....	May 21, 1888
35	Stirling, Yates, jr.....	Massachusetts.....	Sept. 6, 1888
26	Stitt, Thomas Lutz.....	Indiana.....	Sept. 5, 1888
37	Stopford, Frederick William.....	Massachusetts.....	May 19, 1888
30	Symington, Powers.....	West Virginia.....	Sept. 7, 1888
16	Thompson, Leon Seymour.....	Ohio.....	May 21, 1888
14	Traut, Frederick Augustus.....	Connecticut.....	May 13, 1888
71	Wedekind, George.....	New York.....	Sept. 5, 1888
38	Zillman, Christian Charles Herman.....	Missouri.....	Sept. 27, 1888

at the annual examination, June, 1890.—Continued.

Age at date of admission.		Order of merit.						Number of demerits.	Sea service in practice ships.		Order of annual merit.
Years.	Months.	Trigonometry, analytical geometry, and descriptive geometry.	Chemistry and physics.	English, history, and the Constitution.	French, Spanish, and German.	Mechanical drawing.	Discipline.		Months.	Days.	
15	8	19	38	32	15	7	31	65	4	17	19
16	4	19	22	45	40	46	45	124	0	38	35
15	1	37	32	21	30	35	6	10	1	27	26
15	7	25	24	31	24	44	53	250	4	17	37
15	11	41	25	20	6	48	41	90	1	27	30
14	0	17	25	28	9	33	2	13	4	17	16
16	11	26	13	24	4	16	17	37	4	17	14
16	6	51	53	42	38	24	18	44	1	27	7†
17	8	49	44	17	34	43	22	35	1	27	38

Relative standing of the Third Class (72 members)

Order of annual merit.	Name.	State.	Date of admission.
52	Asbury, Louis George, jr	Louisiana	Sept. 7, 1889
46	Bagley, Worth	North Carolina	Sept. 5, 1889
58	Baird, Lewis Conway	Indiana	Sept. 6, 1889
¶	Bennett, Ernest Linwood	Massachusetts	Sept. 24, 1889
36	Berry, David Mark	California	Sept. 6, 1889
*1	Bisset, Eugene Leo	Kentucky	Oct. 2, 1889
30	Brady, John Richard	Pennsylvania	Sept. 6, 1889
23	Campbell, Edward Hale	Indiana	Sept. 6, 1889
56	Carver, Marvin	Minnesota	Sept. 27, 1889
22	Chadwick, Frank Laird	Minnesota	May 18, 1889
*8	Clark, Frank Hodges, jr	Rhode Island	Sept. 5, 1889
P	Cobb, John Addison, jr	Georgia	May 22, 1889
32	Coleman, James Samuel	Alabama	Sept. 5, 1889
24	Cook, Allen Merriam	Kansas	May 22, 1889
33	Crocker, John Archdell	Pennsylvania	May 22, 1889
17	Crosley, Walter Selwyn	Connecticut	Sept. 9, 1889
d61	Cruse, Andrew Jackson, jr	Pennsylvania	May 18, 1889
¶	Dailey, Harry Logan	Texas	Sept. 7, 1889
21	Doddridge, John Schon	West Virginia	Sept. 7, 1889
35	Douglas, Richard Spencer	Georgia	June 3, 1889
*3	Elder, Edward Avery	Massachusetts	May 21, 1889
13	Feild, Hubbard Moylan	Virginia	May 20, 1889
55	Fewell, Christopher Catron	Texas	Oct. 2, 1889
15	Fitch, Claude Eames	Illinois	Sept. 7, 1889
19	Gise, William Kern	Illinois	June 14, 1889
42	Groesbeck, William Gerard	Ohio	Sept. 5, 1889
*9	Groff, Joseph Coblentz	Maryland	Oct. 3, 1889
31	Hains, Peter Connor, jr	District of Columbia	May 18, 1889
44	Holsinger, Gerald Long	Kansas	Oct. 3, 1889
25	Hooker, James Clifton	Tennessee	Sept. 7, 1889
28	Jackson, Orton Porter	Pennsylvania	May 18, 1889
¶	James, Leland Frierson	South Carolina	Sept. 9, 1889
¶	Johnson, Moulton Kinsinger	Ohio	June 10, 1889
†	Jones, Lewis Benson	New York	May 21, 1889
11	Kellogg, Thomas Steele	At large	Oct. 19, 1889
12	Lang, Charles Jonas	Pennsylvania	Sept. 6, 1889
43	Logan, William Vance	Indiana	June 26, 1889
*4	Magill, Louis John	Pennsylvania	Nov. 11, 1889
§	Manion, Walter James	Louisiana	May 21, 1889
50	McKethan, Alfred Augustus	North Carolina	Sept. 5, 1889
14	Montgomery, William Slack	Kentucky	Sept. 5, 1889
39	Morris, John Ramsey	Missouri	Sept. 7, 1889
18	Nutting, Daniel Chapin, jr	Kansas	May 21, 1889
27	Olmstead, Percy Napier	Oregon	May 21, 1889
*2	Parker, Thomas Drayton	South Carolina	Oct. 3, 1889
53	Pearson, Henry Allen	Utah	Sept. 6, 1889
54	Perry, Joseph Albert	Illinois	Sept. 6, 1889

at the annual examination, June, 1890.

Age at date of admission.		Order of merit.				Number of demerits.	Sea-service in practice-ships.		Order of annual merit.
Years.	Months.	English and history.	Algebra and geometry.	French, Spanish, and German.	Discipline.		Months.	Days.	
19	10	58	60	20	52	58	2	22	52
15	5	46	49	35	51	59	2	22	46
18	2	60	44	58	63	122	2	22	58
17	10	a	a	a	a	1	0	0	¶
17	7	40	33	41	2	0	2	22	36
18	1	1	1	6	25	30	2	22	*1
16	11	30	28	30	64	127	2	22	30
16	11	46	8	36	28	30	2	22	23
18	5	41	49	66	36	29	2	22	56
17	2	19	20	34	34	67	4	19	22
17	9	12	6	17	6	16	2	22	*8
16	3	a	a	a	a	73	1	27	P
16	3	61	24	23	28	33	2	22	32
18	8	15	18	39	49	43	4	14	24
17	3	27	31	43	24	33	4	19	33
17	10	38	9	30	3	15	2	22	17
16	4	62	47	57	66	192	4	19	61
18	4	a	a	a	a	129	0	0	¶
17	1	8	13	48	31	34	2	22	21
17	10	25	38	29	55	73	4	19	35
16	9	4	5	8	44	35	4	19	*3
18	0	6	12	19	56	74	4	19	13
15	11	59	43	63	43	48	2	22	55
17	0	30	15	16	28	26	2	22	15
18	0	5	31	24	20	29	4	19	19
15	0	50	54	15	61	114	2	22	42
19	4	21	10	7	12	16	2	22	*9
17	4	30	42	24	41	30	4	19	31
19	3	39	37	56	36	35	2	22	44
18	1	25	46	10	5	16	2	22	25
15	9	10	26	40	50	59	4	19	28
17	0	a	a	a	a	30	0	0	¶
19	6	a	a	a	a	85	0	0	¶
16	6	64	65	51	42	42	4	14	†
18	2	10	19	12	36	50	2	22	11
19	10	12	15	14	45	46	2	22	12
17	5	49	36	38	45	38	4	19	43
18	9	15	7	2	21	35	2	22	*4
16	5	53	62	26	60	129	1	27	§
17	10	51	33	54	21	22	2	22	50
16	1	23	3	45	18	18	2	22	14
19	8	53	22	45	52	49	2	22	39
19	9	9	21	27	8	16	4	19	18
17	10	28	23	32	21	13	1	27	27
18	2	1	10	3	13	20	2	22	*2
19	8	42	54	60	4	13	2	22	53
15	10	63	38	60	6	8	2	22	54

Relative standing of the Third

Order of annual merit.	Name.	State.	Date of admission.
*6	Peugnet, Maurice Berthold	Missouri.....	Sept. 7, 1889
57	Potter, James Boyd	New Jersey.....	Sept. 5, 1889
10	Powell, William Glasgow	New Jersey.....	May 18, 1889
*7	Powelson, Wilfrid Van Nest.....	New York	Sept. 5, 1889
59	Pratt, Alfred Allen	Illinois	Sept. 7, 1889
†	Price, Henry Bertrand	Iowa	May 20, 1889
41	Procter, Andre Morton	Kentucky	Sept. 6, 1889
r	Randolph, William Browne	New York	May 20, 1889
34	Read, Frank De Witt	Ohio.....	Sept. 6, 1889
rb	Ryan, George Whitehouse	Massachusetts.....	Sept. 6, 1889
16	Ryan, John Paul Joseph	New York	May 22, 1889
48	Scott, Guy Terrell	Nebraska.....	Sept. 7, 1889
r37	Shaw, Graham	Pennsylvania.....	Sept. 7, 1889
51	Stearns, Edward Cheever	Ohio	May 21, 1889
45	Sticht, John Low	New York	Sept. 7, 1889
46	Sturdevant, Richard	Pennsylvania.....	Sept. 6, 1889
†	Townsend, Arthur Critchlow	Pennsylvania.....	May 22, 1889
40	Trench, Martin Edward	Minnesota.....	Oct. 3, 1889
38	Upham, Frank Brooks	Montana.....	Sept. 6, 1889
20	Valentine, William Stanley	New York	May 20, 1889
*5	Ward, Henry Heber	New Jersey.....	Sept. 7, 1889
26	Wells, Chester	Pennsylvania.....	Nov. 15, 1889
49	Whitman, Walter Bloomfield	Texas	May 20, 1889
29	Wilson, Thomas Sheldon.....	Illinois	May 20, 1889
60	Wishart, William Clifton	North Carolina	May 30, 1889

Class, etc.—Continued.

Age at date of admission.		Order of merit.				Number of demerits.	Sea-service in practice-ship.		Order of annual merit.
Years.	Months.	English and history.	Algebra and geometry.	French, Spanish, and German.	Discipline.		Months.	Days.	
18	7	1	40	1	1	14	2	22	*6
16	8	56	56	52	57	85	2	22	57
17	8	34	17	4	36	48	2	22	10
17	0	12	2	13	40	39	2	22	*7
16	2	51	59	64	54	49	2	22	59
19	11	28	63	36	8	9	4	14	†
16	2	53	14	48	62	109	2	22	41
17	9	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	4	4	19	<i>r</i>
19	2	20	56	20	45	40	2	22	34
18	3	64	64	28	16	11	0	0	<i>rb</i>
19	9	22	29	10	19	22	2	22	16
16	8	44	48	41	48	33	2	22	48
15	8	33	45	20	65	167	2	22	<i>r37</i>
17	8	36	51	54	16	20	4	19	51
16	5	45	29	60	57	74	2	22	45
17	7	23	53	59	14	10	2	22	46
17	0	56	66	65	27	28	4	14	†
19	10	42	33	44	31	45	2	22	40
17	0	48	41	32	14	19	2	22	38
16	11	15	58	5	8	22	4	19	20
18	3	15	4	9	25	38	2	22	*5
19	1	34	25	18	59	90	0	0	26
18	6	37	51	52	8	3	4	19	49
18	1	7	26	48	31	35	4	19	29
17	10	66	61	47	34	41	4	19	60

16152 REG—3

Fourth Class—81 members.

Name.	State.	Date of admission.	Age at date of admission.		Sea service in practice ships.	
			Years.	Months.	Months.	Days.
Adams, Lawrence Stowell	Pennsylvania	Sept. 26, 1890	15	7		
Andrews, Claude Norton	Iowa	Sept. 8, 1890	16	6		
Babin, Provoost	New York	Sept. 6, 1890	18	0		
Baker, Henry Thomas	Ohio	Oct. 7, 1890	16	4		
Baldwin, Murray	Texas	Sept. 27, 1890	17	11		
Batts, Edward Lee	Texas	May 22, 1890	17	11		
Bennett, Ernest Linwood	Massachusetts	Sept. 24, 1889	17	10		
Berryman, John Russell	Ohio	May 22, 1890	17	11		
Bivins, Robert Francis	North Carolina	Sept. 27, 1890	16	9		
Blandy, Edwin Chauncey	Pennsylvania	May 20, 1890	17	8		
Bookwalter, Charles Sumner	Illinois	Sept. 8, 1890	16	10		
Bulmer, Roscoe Carlyle	Nevada	Sept. 26, 1890	15	11		
Chappell, Ralph Hubert	Michigan	May 22, 1890	18	11		
Chester, Arthur Tremain	At Large	May 19, 1890	15	9		
Churchill, Winston	Missouri	May 21, 1890	18	6		
Cone, Huteh Ingham	Florida	Sept. 5, 1890	19	4		
Cooper, Ignatius Taylor	Delaware	May 20, 1890	17	11		
Cox, Daniel Hargate	New York	Sept. 9, 1890	17	6		
Craven, Thomas Tingey	Tennessee	Sept. 27, 1890	17	2		
Crosby, Benjamin Gratz	At Large	Sept. 26, 1890	18	8		
Dailey, Harry Logan	Texas	Sept. 7, 1889	18	4		
De Jarnette, Jas. Daniel Coleman	Virginia	Sept. 8, 1890	17	9		
De Kay, Eckford Craven	New York	Sept. 26, 1890	17	3		
Do Lany, Edwin Hayden	Tennessee	May 21, 1890	19	2		
Emery, Arthur Ballard	New Hampshire	May 22, 1890	17	7		
England, Clarence	Arkansas	Sept. 5, 1890	18	2		
Fullinwider, Simon Peter	Missouri	May 21, 1890	18	9		
Galbraith, Gilbert Smith	Pennsylvania	Sept. 8, 1890	18	5		
Gelm, George Earl	New York	May 22, 1890	19	7		
Gillis, Irvin Van Gorder	New York	Sept. 6, 1890	15	8		
Graham, Stephen Victor	Michigan	May 19, 1890	16	2		
Greer, George Tate	Virginia	May 20, 1890	18	5		
Griffith, Claude Willis	Maryland	Sept. 8, 1890	17	11		
Hinds, Alfred Walton	Alabama	Sept. 6, 1890	16	1		
Houk, Herman Whitelaw	Kansas	Sept. 8, 1890	19	5		
Hudgins, John Melton	Virginia	Sept. 8, 1890	18	10		
Hull, Alexander Thomas	Virginia	May 21, 1890	15	5		
Izard, Walter Blake	South Carolina	Sept. 10, 1890	17	4		
James, Leland Frierson	South Carolina	Sept. 9, 1889	17	0		
Johnson, Moulton Kinsinger	Ohio	June 10, 1889	19	6		
Jones, Lewis Burton	New York	May 21, 1890	17	5		
Kavanagh, Arthur Glynn	Nebraska	May 20, 1890	19	4		
Kress, Frederick Charles	Pennsylvania	Sept. 6, 1890	18	2		
La Bach, Paul Mayer	North Dakota	Sept. 26, 1890	18	0		
Lane, Charles Arthur	Missouri	May 20, 1890	19	3		
Luby, John McClane	Texas	Sept. 8, 1890	16	4		
Lyon, Frank	Kentucky	May 20, 1890	16	1		
Mauion, Walter James	Louisiana	Sept. 6, 1890	17	9		
Mann, George Hiram	Pennsylvania	Sept. 6, 1890	18	4		
McAvoy, Ballard Brownlee	New Jersey	Sept. 6, 1890	17	7		
McCormack, Michael James	Michigan	May 22, 1890	16	7		

Fourth Class—81 members—Continued.

Name.	State.	Date of admission.	Age at date of admission.		Sea service in practice ships.	
			Years.	Months.	Months.	Days.
McLean, Ridley.....	Tennessee.....	May 20, 1890	17	6		
McMorris, Boling Kavanaugh...	Alabama.....	Sept. 15, 1890	18	6		
McNeely, Robert Whitehead...	North Carolina.....	Sept. 8, 1890	17	1		
Moody, Roscoe Charles.....	Maine.....	Sept. 8, 1890	17	6		
Osborn, Robert Hatfield.....	New York.....	May 23, 1890	16	6		
Perkins, Frederick King.....	California.....	June 11, 1890	17	6		
Reeves, Joseph Mason.....	Illinois.....	Sept. 8, 1890	17	10		
Ridgely, Randolph, jr.....	Georgia.....	May 21, 1890	18	8		
Robert, William Pierre.....	Mississippi.....	May 20, 1890	16	10		
Roberts, Thomas Gaines.....	Alabama.....	May 27, 1890	19	9		
Ryan, George Whitehouse.....	Massachusetts.....	June 12, 1890	18	10	1	27
Sandoz, Fritz Louis.....	Louisiana.....	May 19, 1890	18	3		
Scott, William Pitt.....	Pennsylvania.....	May 20, 1890	16	11		
Sellers, David Foote.....	New Mexico.....	May 21, 1890	16	4		
Shaw, Melville Jones.....	Minnesota.....	Sept. 6, 1890	18	1		
Snow, Carlton Farwell.....	Maine.....	May 19, 1890	16	2		
Spear, Roscoe.....	Pennsylvania.....	May 23, 1890	18	4		
Stone, George Loring Porter.....	Georgia.....	Sept. 26, 1890	15	2		
Stone, Raymond.....	Alabama.....	Sept. 5, 1890	17	1		
Talcott, Arthur Jewell.....	Rhode Island.....	May 21, 1890	17	5		
Polfree, Herbert Myron.....	New York.....	May 21, 1890	16	7		
Pompkins, John Thomas.....	Louisiana.....	Sept. 6, 1890	19	11		
Towne, Arthur Elisha.....	South Dakota.....	Sept. 26, 1890	19	8		
Turpie, Walter Stevens.....	Maryland.....	May 22, 1890	15	8		
Walker, Henry Mallory.....	South Dakota.....	Sept. 8, 1890	19	6		
Watson, Edward Howe.....	Kentucky.....	Sept. 26, 1890	16	7		
Webster, Charles.....	Massachusetts.....	Sept. 6, 1890	16	8		
Whitted, William Scott.....	North Carolina.....	May 20, 1890	19	10		
Winn, Philip Bird.....	Kentucky.....	Sept. 12, 1890	19	4		
Winship, Emory.....	Georgia.....	June 3, 1890	18	3		

SUMMARY OF CADETS AT THE U. S. NAVAL ACADEMY.

December 13, 1890.

	Members.
First class.....	48
Second class.....	51
Third class.....	61
Fourth class.....	81
Total.....	241

APPOINTMENTS, DISCHARGES, RESIGNATIONS, DISMISSALS.

November 23, 1889, to December 13, 1890.

APPOINTED ENSIGNS.

Naval Cadet Frank Marble	Class of 1888
Naval Cadet Ashley Herman Robertson	Class of 1888
Naval Cadet Carlo Bonaparte Brittain	Class of 1888
Naval Cadet Casey Bruce Morgan	Class of 1888
Naval Cadet William Michael Crose	Class of 1888
Naval Cadet John Flavèl Hubbard	Class of 1888
Naval Cadet Delworth Wilson Beswick	Class of 1888
Naval Cadet Marcus Lyon Miller	Class of 1888
Naval Cadet Lloyd H. Chandler	Class of 1888
Naval Cadet George North Hayward	Class of 1888
Naval Cadet Samuel Shelburn Robison	Class of 1888
Naval Cadet Henry Kennedy Benham	Class of 1888
Naval Cadet Charles Frederick Hughes	Class of 1888
Naval Cadet Albert Leland Norton	Class of 1888
Naval Cadet James Henry Reid	Class of 1888
Naval Cadet William Buell Franklin	Class of 1888
Naval Cadet Henry Ariosto Wiley	Class of 1888
Naval Cadet Frederick Brewster Bassett, jr.	Class of 1888
Naval Cadet Herbert Grenville Gates	Class of 1888

APPOINTED ASSISTANT ENGINEERS.

Naval Cadet Armin Hartrath	Class of 1888
Naval Cadet Oscar William Koester	Class of 1888
Naval Cadet Edward Latimer Beach	Class of 1888
Naval Cadet Herman Osman Stickney	Class of 1888

APPOINTED ASSISTANT NAVAL CONSTRUCTOR.

Naval Cadet William Newton Vasant	Class of 1888
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APPOINTED SECOND LIEUTENANTS U. S. MARINE CORPS.

Naval Cadet John Archer Lejeune	Class of 1888
Naval Cadet Clarence Louis Adrian Ingate	Class of 1888
Naval Cadet Leroy Augustus Stafford	Class of 1888
Naval Cadet Eli Kelley Cole	Class of 1888
Naval Cadet Theodore Porter Kane	Class of 1888

RESIGNED.

aval Cadet Edward Ernest West, class of 1888 <i>s</i>	May 6, 1889
aval Cadet Walter James Manion, fourth class <i>s</i>	May 13, 1889
aval Cadet George Tate Greer, fourth class	Jan. 22, 1890
aval Cadet Ralph Collins Chadbourne, second class.....	Jan. 23, 1890
aval Cadet Thomas Holdup Stevens Vail, fourth class.....	Jan. 29, 1890
aval Cadet Edward Price Smith, fourth class.....	Feb. 8, 1890
aval Cadet John Curlett, third class	Feb. 14, 1890
aval Cadet Leonard Goodwin, third class.....	Feb. 14, 1890
aval Cadet Joseph Coolidge Kilbourne, third class.....	Feb. 14, 1890
aval Cadet Robert Abercrombie French, fourth class.....	Feb. 14, 1890
aval Cadet John Russell Berryman, fourth class.....	Feb. 14, 1890
aval Cadet Gordon Hood, fourth class	Feb. 14, 1890
aval Cadet John Randolph Johnson, fourth class.....	Feb. 14, 1890
aval Cadet Samuel Granger Latta, fourth class.....	Feb. 14, 1890
aval Cadet Charles Fergus Neill, fourth class.....	Feb. 14, 1890
aval Cadet Archibald Anthon, second class.....	Feb. 15, 1890
aval Cadet Randolph Ridgely, jr., third class.....	Feb. 15, 1890
aval Cadet Rozier Bonaparte Larkin, third class.....	Feb. 17, 1890
aval Cadet Charles Arthur Lane, fourth class.....	Feb. 17, 1890
aval Cadet Edgar Richmond, fourth class	Feb. 17, 1890
aval Cadet Eugene Dewey Ryan, second class	Feb. 18, 1890
aval Cadet Claude Norton Andrews, fourth class.....	Feb. 18, 1890
aval Cadet William Walker Beck, second class	Feb. 20, 1890
aval Cadet Frederick Lloyd Eaton, second class	Feb. 20, 1890
aval Cadet Edward Trickle, second class	Feb. 21, 1890
aval Cadet William Turner Saunders, second class.....	Feb. 24, 1890
aval Cadet Franklin Sidney Rising, first class.....	Feb. 28, 1890
aval Cadet William Alfred Baehr, fourth class	Mar. 4, 1890
aval Cadet Joseph Duval Eberle, fourth class.....	Mar. 17, 1890
aval Cadet Emory Winship, fourth class.....	Mar. 18, 1890
aval Cadet Frederick King Perkins, fourth class.....	May 17, 1890
aval Cadet Raymond Belt Swigart, third class.....	May 20, 1890
aval Cadet John Addison Cobb, jr., fourth class	June 3, 1890
aval Cadet George Whitehouse Ryan, fourth class.....	June 9, 1890
aval Cadet Walter James Manion, fourth class.....	June 19, 1890
aval Cadet Charles William Lyle, second class.....	June 20, 1890
aval Cadet William Newton Vansant, class appointed 1884 <i>t</i>	June 30, 1890
aval Cadet Graham Shaw, third class	Sept. 20, 1890
aval Cadet William Browne Randolph fourth class	Sept. 30, 1890
aval Cadet Josiah Grigg Sawyer, second class	Oct. 4, 1890
aval Cadet George Wedekind, third class	Oct. 8, 1890
aval Cadet Charles Teed Pollard, jr., second class	Oct. 22, 1890
aval Cadet William Howland Ford, first class	Nov. 15, 1890
aval Cadet Roby Robinson, first class.....	Nov. 15, 1890
aval Cadet Beriah Ellwood Jones, second class.....	Nov. 15, 1890
aval Cadet Arthur Critchlow Townsend, third class	Nov. 15, 1890

s Omitted in register of last year.

t Appointed assistant naval constructor July 1, 1890.

DISMISSED.

Naval Cadet Thomas Leoline Jenkins, fourth class	Mar. 1, 1890
Naval Cadet Andrew Jackson Cruse, jr., third class	Oct. 22, 1890

DIED.

Naval Cadet George William Kirk, class appointed 1885 <i>u</i>	Nov. 17, 1889
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u Drowned.

MERIT-ROLLS FOR 1889-'90.

Merit-rolls, made out annually for each class, show the proficiency of the cadets in each branch of study. The numbers given in the table, page 75, showing the relative weight of the different branches, are used as co-efficients; the final mark in each branch (on a scale of 4) being multiplied by the number assigned to that branch. The sum of the products, after adding the multiple for discipline, is the final mark of the cadet for the year.

In the case of cadets who take an advanced course in any branch, the final mark in that branch is determined by adding to the final mark received in the required course one-fifth of the amount by which the final mark in the advanced course exceeds 2.50.

In the graduating merit-roll, the final standing for the course is determined by the sum of the yearly marks.

"Cadets who attain 85 per cent. of the multiple in any year shall be distinguished by a star affixed to their names on the merit-rolls." (Regulations U. S. Naval Academy, § 191.)

The diplomas of cadets whose final marks on the graduating merit-roll are not less than 85 per cent. of the maximum read "passed with distinction;" those whose final marks are between 74 per cent. and 85 per cent. of the maximum read "passed with credit;" and those whose final marks are between $62\frac{1}{2}$ per cent. and 74 per cent. of the maximum read "passed."

P Physically disqualified for the naval service.

* Received 85 per cent. of the multiple.

† Found deficient, allowed a re-examination, passed, and continued with class.

‡ Found deficient, allowed a re-examination, again deficient, and recommended to be dropped.

§ Found deficient, and recommended to be dropped.

¶ Retained in next lower class.

a Absent from examination.

b Deficient.

d Dismissed.

e Selected for engineer division.

r Resigned.

Merit-roll of the graduating class of naval cadets at the conclusion of the six years' course, June, 1890.

Order of merit.	NAME.	Seamanship and naval tactics.	Ordnance and gun- nery.	Navigation.	Steam-engineering.	Modern languages.	Cruise-reports, nav- igation note books, journals, and sta- tion bills.	Aggregate for final examination.	Aggregate for four years.	Final aggregate.	ASSIGNMENT.
		56	44	44	44	28	24	240	760	1000	
1	Maxima..	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ensign.
2	Marble, Frank.....	44 52	41 69	37 73	40 37	23 87	22 92	211 10	670 27	881 37	Ensign.
3	Robertson, Ashley Herman.....	43 54	34 65	36 63	37 18	23 31	20 40	195 71	622 92	818 63	Ensign.
4	Brittain, Carlo Bonaparte.....	45 36	39 60	37 73	40 81	21 63	21 12	206 25	609 38	815 63	Ensign.
5	Morgan, Casey Bruce.....	41 86	35 97	34 54	37 29	20 72	21 00	191 38	608 89	800 27	Ensign.
6	Croce, William Michael.....	43 68	35 53	37 07	38 06	21 28	21 48	197 10	592 39	789 49	Ensign.
7	Lejeune, John Archer.....	45 22	34 98	39 38	38 17	21 01	21 60	203 56	583 85	787 21	Second lieutenant, Marine Corps.
8	Hubbard, John Flavel.....	43 54	39 71	36 41	37 73	23 37	20 88	201 64	585 33	786 97	Ensign.
9	Beswick, Delworth Wilson.....	42 56	34 54	39 49	38 94	21 42	20 82	197 77	586 46	784 23	Ensign.
10	Miller, Marcus Lyon.....	44 52	39 60	34 65	29 59	23 58	21 30	193 24	590 58	783 82	Ensign.
11	Chandler, Lloyd Horwitz.....	47 18	31 57	33 66	40 70	23 10	19 38	195 59	580 55	776 14	Ensign.
12	Hartath, Armin.....	37 52	33 88	32 34	36 08	36 92	19 02	195 76	577 86	773 12	Assistant engineer.
13	Koester, Oscar William.....	43 26	30 03	35 64	35 97	18 20	20 58	183 68	589 10	772 78	Assistant engineer.
14	Hayward, George North.....	39 90	29 92	31 57	37 95	21 21	20 70	181 25	589 89	771 14	Ensign.
15	Ingate, Clarence Louis Acrian.....	40 32	34 76	38 17	35 75	24 15	22 32	195 47	575 09	770 56	Second lieutenant, Marine Corps.
16	Robison, Samuel Shelburn.....	40 32	30 25	35 75	32 12	19 60	19 62	177 66	582 04	759 70	Ensign.
17	Penham, Henry Kennedy.....	35 70	38 94	30 91	37 18	19 25	21 42	183 40	573 41	756 81	Ensign.
18	Hughes, Charles Fredoric.....	44 80	27 83	31 46	38 83	17 57	20 88	181 37	565 91	747 31	Ensign.
19	Norton, Albert Leland.....	45 22	29 04	34 87	34 32	17 64	22 62	183 71	560 87	744 58	Ensign.
20	Stafford, Leroy Augustus.....	41 30	35 31	32 78	34 32	18 69	22 20	184 60	559 83	744 43	Second lieutenant, Marine Corps.
21	Cole, Eli Kelley.....	43 68	35 42	38 72	34 87	17 71	21 00	191 40	546 91	738 31	Second lieutenant, Marine Corps.
22	Reid, James Henry.....	36 68	34 43	33 77	43 23	19 81	20 88	188 80	533 24	722 04	Ensign.
23	Franklin, William Buell.....	40 60	34 54	32 89	35 86	20 86	20 28	185 03	534 03	719 06	Ensign.

23	Beach, Edward Latimer.....	39.20	33.99	33.55	38.05	20.72	21.00	186.52	525.03	711.55	Assistant engineer.
24	Stickney, Herman Osman	39.34	27.50	36.63	23.27	24.54	16.68	172.96	532.00	704.96	Assistant engineer.
25	Wiley, Henry Ariosto.....	39.62	33.33	28.93	31.68	20.09	22.92	176.57	510.02	686.59	Ensign.
26	Bassett, Frederick Brewster, Jr.....	36.96	27.94	27.83	30.58	19.81	20.82	163.94	519.28	683.22	Ensign.
27	Kane, Theodore Porter.....	39.62	30.36	27.61	35.75	19.95	20.28	173.57	509.11	682.68	Second lieutenant, Marine Corps.
28	Gates, Herbert Grenville.....	37.24	31.57	27.61	30.25	17.50	20.28	164.45	517.64	682.09	Ensign.

Merit-roll of the naval cadets of the class appointed in 1885—Annual examination, June, 1889.

NAME.	Order of merit.														
	Seamanship, ship-building, and naval architecture.	Seamanship, practical cruise.	Ordnance and gunnery.	Astronomy, navigation, and surveying.	Navigation, practical cruise.	Practical instruction in steam engineering.	Least squares and strength of materials.	Physical measurements.	Physiology and hygiene.	Conduct.	Aggregate for fourth year.	Aggregate for third year.	Aggregate for second year.	Aggregate for first year.	General aggregate for four years.
Maxima	68	20	72	52	12	8	20	20	12	20	304	228	152	76	760
*1 Richmond P. Hobson	62.56	17.85	66.42	44.98	10.53	6.60	18.05	18.05	10.56	18.80	*274.40	196.23	134.75	68.25	673.63
*2 George H. Rock	60.52	17.75	66.24	46.28	10.56	7.00	17.85	18.15	9.15	19.07	*272.57	192.76	137.63	68.45	671.41
*3 Arthur B. Hoff	53.31	17.80	62.28	43.03	10.65	5.70	17.45	17.25	10.32	19.20	*261.99	187.64	139.07	72.05	660.75
c4 Nathan C. Twining	56.61	16.85	63.90	41.86	9.99	6.50	16.15	16.10	9.75	16.53	254.24	186.89	133.18	68.15	642.46
c5 Benjamin F. Hutchison	53.38	16.65	59.22	44.07	10.53	6.60	16.55	16.95	10.17	18.67	252.69	178.67	132.68	66.88	630.92
c6 William V. Pratt	54.74	17.05	61.56	40.95	10.98	6.10	15.05	15.75	9.63	14.80	246.61	173.43	124.97	67.11	612.12
c7 Sumner E. Kittelle	55.25	17.50	56.34	37.83	9.36	6.50	13.50	16.15	10.71	19.87	243.01	173.07	125.20	62.01	603.29
c8 George R. Marvell	49.47	16.60	55.44	39.78	9.54	6.10	15.05	13.90	8.67	18.93	233.78	170.13	126.71	63.11	593.73
c9 Lewis C. Lucas	48.79	15.80	56.70	37.31	9.63	6.50	16.15	14.60	7.98	17.47	230.93	181.71	122.80	52.91	588.35
c10 Lewis C. Lucas	56.61	15.85	59.76	37.96	8.76	6.50	13.85	13.80	8.67	17.33	239.09	166.84	120.69	60.38	587.00
c11 John B. Patton	42.45	16.35	58.14	39.52	9.36	6.00	13.40	12.50	7.62	16.13	227.47	170.31	112.40	56.51	566.69
c12 Bertram S. Neumann	51.17	17.09	53.82	34.32	9.39	6.00	12.60	13.75	8.25	18.67	224.97	169.32	116.85	54.61	565.75
c13 Charles G. Long	46.07	14.70	53.28	35.88	9.09	6.20	14.55	14.95	8.13	16.27	219.12	158.21	123.87	63.73	564.93
c14 William D. MacDougall	53.55	15.15	52.74	33.67	8.31	6.50	13.65	13.70	8.91	14.00	220.18	166.51	118.99	59.00	564.68
c15 George W. Danforth	47.94	14.95	51.30	34.71	7.80	6.40	12.90	14.45	8.01	16.13	214.59	176.84	120.05	58.05	559.53
c16 Thomas P. Magruder	49.81	15.75	58.68	42.51	8.64	5.10	13.90	14.55	8.10	13.87	230.91	162.46	113.09	59.05	555.51
c17 Edward R. Lowndes	47.77	15.30	53.46	35.75	8.46	6.00	15.20	14.60	7.92	11.60	216.00	166.83	114.83	56.95	534.67
c18 Louis R. de Steiguer	46.41	14.05	53.28	37.44	9.12	5.90	15.55	14.45	8.10	13.60	219.90	163.04	109.71	56.55	549.20
c19 George B. Bradshaw	47.94	13.50	58.50	37.70	8.19	5.90	15.00	14.20	7.86	7.33	216.12	166.88	108.91	57.27	549.18
c20 William W. Phelps	51.34	15.50	56.70	38.48	8.76	5.80	13.75	13.35	8.55	14.13	226.36	155.35	106.90	54.61	543.22
c21 Louis A. Kaiser	44.54	13.80	54.72	35.10	8.79	5.60	14.05	12.00	7.95	6.93	203.72	165.67	113.83	58.93	542.15
c22 Cleland N. Offley	46.92	13.90	50.40	35.23	8.01	6.50	13.25	12.75	8.19	16.27	211.18	157.51	115.50	57.68	541.87
c23 William C. Cole	47.26	16.35	49.80	34.45	8.64	5.80	13.60	13.00	8.76	12.00	211.72	157.20	113.26	59.41	541.59

24	George G. Mitchell.....	46.07	14.65	55.08	37.18	9.42	6.10	13.00	14.70	8.01	18.80	223.01	156.11	109.21	52.24	540.57
25	Ben H. Fuller.....	47.94	13.65	58.50	40.56	9.63	5.80	16.00	14.35	8.22	8.07	223.62	151.21	109.72	55.70	540.25
26	Charles A. Brand.....	48.28	15.90	53.28	35.36	9.75	5.80	14.70	13.95	8.73	12.80	218.55	150.71	107.73	62.77	539.76
27	Philip Williams.....	49.30	12.75	53.46	34.97	8.52	6.20	13.30	12.85	8.16	12.13	211.64	159.85	106.42	57.47	535.38
28	Robert E. Carney.....	51.34	17.15	51.84	35.49	8.25	6.10	11.40	13.85	8.43	14.53	218.38	151.90	104.02	55.47	529.77
29	Warren J. Terhune.....	44.88	14.15	49.86	33.93	7.74	5.80	13.30	13.05	8.67	7.20	198.58	156.82	111.81	59.98	527.19
30	Robert McM. Dutton.....	44.20	14.45	50.94	32.11	8.37	5.60	12.65	13.00	8.70	12.67	202.69	148.92	107.65	51.29	513.55
31	William K. Harrison.....	43.35	14.30	48.78	34.58	8.49	5.80	13.35	13.30	7.98	15.47	205.40	150.68	101.71	52.70	510.49
32	Julius Prochazka.....	43.69	15.95	45.00	34.84	8.94	6.50	12.90	12.90	7.89	17.87	206.48	147.21	98.08	51.74	503.51
33	George L. Fernier.....	47.26	17.20	45.90	32.89	9.09	6.90	12.50	13.35	0.00	0.00	185.09	148.94	106.78	51.38	492.19

* Completed four years' course "with distinction."

c Completed four years' course "with credit."

Merit roll of the naval cadets of the first class, line division. — Annual examination, June, 1890.

Order of merit.	NAME.	Discipline.										Aggregate for			
		Seamanship, ship-building, and naval architecture.	Ordnance and gunnery.	Astronomy, navigation, and surveying.	Least squares and strength of materials.	Physics and chemistry.	Physiology and hygiene.	International law.	Discipline.	Aggregate for fourth year.	Aggregate for third year.	Aggregate for second year.	Aggregate for first year.	General aggregate for four years.	760
	Maxima.....	88	72	64	20	20	12	8	20	304	258	152	76		
*1	Thomas F. Ruhm	78.98	62.10	56.48	17.35	16.45	10.29	6.70	15.73	264.08	196.36	137.90	71.25	669.59	
*2	Lawrence Spear	80.52	64.44	56.96	17.85	16.50	10.95	6.64	16.94	270.80	192.80	132.23	63.23	664.06	
c3	Noah T. Coleman	75.02	61.20	53.92	17.20	15.45	9.75	6.38	10.47	249.39	186.59	131.22	66.25	632.45	
c4	Frank H. Schofield	78.10	57.96	52.64	15.75	16.25	9.66	5.92	17.73	254.01	184.65	125.63	64.51	628.80	
c5	Jehu V. Chase	66.00	59.04	51.26	16.55	15.15	9.24	6.12	12.33	236.19	180.78	126.23	66.17	609.37	
c6	Alonzo Gartley	73.26	61.56	52.16	15.90	15.10	8.94	6.12	16.00	248.74	177.36	117.80	58.70	602.60	
c7	Henry J. Ziegemeier	64.24	59.22	53.44	13.05	15.45	8.94	6.66	16.07	237.07	171.24	130.97	63.06	602.34	
c8	Cleland Davis	62.92	56.34	48.32	14.20	15.05	9.66	6.44	11.73	224.66	173.54	126.11	64.87	589.18	
c9	Matt. A. Signor	58.30	53.82	51.84	16.75	14.95	9.03	5.50	12.87	223.06	169.62	121.96	61.81	576.45	
c10	John M. Blankenship	65.34	54.72	49.44	15.05	15.40	9.30	6.34	15.80	231.39	163.57	118.09	61.73	574.78	
c11	William H. Buck	61.60	54.00	44.48	13.80	14.80	9.81	6.26	17.73	222.48	160.54	121.09	62.26	560.46	
12	Montgomery M. Taylor	67.54	54.18	42.72	13.50	13.75	9.54	6.30	12.40	219.93	166.17	112.10	62.26	560.46	
13	Henry S. Ritter	65.78	55.62	51.36	13.55	14.80	9.45	6.24	18.00	234.80	158.01	109.60	57.11	559.52	
14	George W. Williams	60.72	49.50	48.96	13.65	13.05	8.37	6.30	10.13	210.68	161.95	120.18	66.17	538.98	
15	Albertus W. Catlin	62.92	59.76	52.32	13.85	13.80	9.63	6.32	10.87	229.47	159.32	109.33	58.53	556.65	
16	Charles B. McVay, jr.	59.18	54.90	47.04	11.80	13.35	9.00	6.48	17.93	210.68	159.95	117.33	58.29	555.25	
17	Charles T. Vogelgesang	59.40	48.42	42.88	12.60	13.85	9.72	6.34	17.74	210.65	158.43	117.42	62.39	549.19	
18	Lay H. Everhart	65.34	53.46	48.00	14.35	12.95	8.97	5.26	15.33	222.76	155.73	112.32	57.34	548.15	
19	William A. Snow	58.74	51.66	41.32	13.45	14.50	9.27	6.50	17.00	215.44	157.26	114.60	59.19	546.49	
20	Franklin B. Sullivan	64.90	54.90	47.36	14.70	14.55	9.45	6.00	3.60	215.46	165.63	103.47	55.65	542.21	
21	Claudio Bailey	57.20	50.58	46.40	13.85	13.80	8.37	5.72	12.60	203.52	158.99	112.84	61.67	542.02	
22	Wendell C. Neville	61.60	55.44	46.40	12.50	14.15	9.09	5.98	15.60	220.76	156.69	103.67	58.01	539.13	
23	Lawrence H. Moses	57.86	51.12	45.76	15.55	13.30	8.64	6.72	1.86	200.81	163.29	110.68	64.27	539.05	

24	John H. Dayton.....	62.04	53.64	46.24	14.45	14.20	8.70	6.00	10.87	216.14	152.86	107.26	58.31	534.57
25	Lucius A. Bostwick.....	65.56	52.20	42.24	14.45	13.50	8.79	5.76	10.13	212.63	154.83	107.58	55.80	530.84
26	Charles O. Bond.....	57.04	50.58	42.72	13.55	13.65	9.24	5.78	14.20	207.36	161.06	107.02	53.73	529.17
27	Cyrus S. Radford.....	58.08	51.66	41.92	12.75	14.10	8.34	5.50	15.40	207.75	158.80	107.16	54.75	528.46
28	Thomas C. Treadwell.....	55.88	46.98	42.24	13.20	13.55	8.97	5.90	12.00	198.72	157.27	107.91	61.88	525.78
29	William A. Moffett.....	60.72	47.70	42.72	12.50	13.10	8.61	6.96	8.93	201.24	152.26	111.82	60.05	525.37
30	Julius L. Latimer.....	58.52	51.12	44.48	13.65	13.45	8.28	5.88	15.73	211.11	155.25	97.95	52.02	516.32
31	John R. Edie.....	55.88	45.18	40.80	12.85	12.55	8.19	5.14	12.47	193.06	149.28	105.41	56.49	504.24

* Completed four years' course "with distinction."

c Completed four years' course "with credit."

Merit-roll of the naval cadets of the first class, engineer division, June, 1890.

Order of merit.	NAME.	Naval construction.	Marine engines.	Designing machinery.	Fabrication.	Boilers.	Least squares and strength of materials.	Mechanics.	Chemistry and physics.	Physiology and hygiene.	Discipline.	Aggregate for fourth year.	Aggregate for third year.	Aggregate for second year.	Aggregate for first year.	General aggregate for four years.
	Maxima	36	48	60	24	36	20	24	24	12	20	304	228	152	76	760
1	Urban T. Holmes	28.98	39.24	49.20	20.46	30.06	17.70	20.82	12.24	8.67	14.93	248.30	181.08	114.52	56.83	600.73
2	Claude B. Price	27.81	35.52	43.05	18.66	27.90	13.45	16.98	18.42	9.09	13.40	224.88	166.04	109.15	56.92	556.99
3	Doctor E. Dismukes	23.40	30.84	37.50	20.70	24.84	13.80	15.06	17.64	8.61	11.80	204.19	151.62	101.79	54.40	512.00

c Completed four years' course " with credit.

Merit-roll of naval cadets, second class (52 members), annual examination, June, 1890.

Order of annual merit.	NAME.	Astronomy, navigation, and surveying.	Steam machinery, marine engines, and boilers.	Practical work in steam engineering.	Mechanics and applied mathematics.	Physics	Modern languages.	Mechanical drawing.	Discipline.	Aggregate.
	Maxima	12	48	12	60	48	20	16	12	228
*1	Frank B. Zahn	11. 07	43. 80	10. 14	54. 75	42. 84	17. 85	14. 16	10. 34	204. 95
*2	Horatio G. Gillmor	10. 50	43. 32	10. 26	55. 95	42. 24	17. 80	13. 24	9. 66	202. 97
*3	Henry G. Smith	11. 01	42. 12	9. 48	55. 80	41. 16	17. 90	13. 36	10. 66	201. 49
*4	DeWitt Blamer	10. 38	42. 72	9. 00	55. 50	41. 64	15. 90	12. 60	9. 54	197. 28
*5	Richard M. Watt	10. 62	41. 52	9. 12	51. 90	39. 60	17. 15	13. 64	10. 66	194. 21
6	John K. Robison	10. 68	40. 08	9. 42	50. 40	39. 24	17. 95	12. 56	9. 78	190. 11
7	Reginald R. Belknap	9. 81	41. 88	9. 93	47. 55	39. 00	18. 05	13. 68	9. 68	189. 58
8	Harley H. Christy	10. 32	40. 80	9. 66	49. 95	37. 80	15. 55	13. 40	8. 76	186. 24
9	Clark D. Stearns	9. 99	38. 64	10. 41	46. 80	38. 76	17. 70	13. 28	10. 42	186. 00
10	Noble E. Irwin	9. 57	40. 32	10. 56	52. 05	36. 48	14. 30	13. 04	8. 94	185. 26
11	Edwin T. Pollock	10. 38	39. 60	9. 33	49. 65	37. 44	16. 80	12. 20	9. 74	185. 14
12	Henry C. Kuenzli	10. 47	39. 72	9. 93	48. 30	37. 08	16. 85	13. 60	8. 66	184. 61
13	John H. Rowen	8. 73	41. 04	9. 81	50. 10	38. 76	14. 15	15. 08	6. 74	184. 41
14	Daniel B. Ninde	9. 96	37. 68	9. 48	46. 80	36. 72	17. 25	15. 04	8. 22	181. 15
15	Arthur L. Willard	10. 26	39. 36	9. 60	40. 95	39. 36	17. 70	11. 44	8. 70	177. 37
16	Waldo Evans	10. 14	38. 04	9. 42	46. 35	37. 32	15. 10	12. 56	8. 02	176. 95
17	Renwick J. Hartung	8. 76	39. 24	9. 90	44. 55	36. 00	14. 50	13. 00	9. 92	175. 87
18	Lucien G. Smith	9. 57	35. 88	9. 60	41. 70	36. 00	17. 15	12. 68	9. 90	172. 48
19	Bion B. Bierer	9. 51	35. 28	9. 78	43. 65	33. 60	14. 65	13. 00	9. 94	169. 41
20	Robert L. Flowers	9. 09	36. 72	9. 87	42. 90	33. 24	15. 65	12. 40	8. 78	168. 65
21	Milton E. Reed	8. 46	36. 48	10. 62	38. 40	33. 84	16. 10	14. 64	10. 04	168. 58
22	Charles R. Emrich	8. 88	37. 08	9. 24	38. 10	35. 52	16. 75	12. 96	7. 08	165. 61
23	Henry H. Hough	8. 49	33. 84	9. 39	37. 65	33. 24	18. 90	13. 56	9. 20	164. 27
24	Harry H. Caldwell	7. 83	36. 72	8. 97	39. 75	33. 96	16. 90	12. 04	7. 88	164. 05
25	Rufus H. Lane	8. 25	35. 64	8. 70	41. 85	34. 32	14. 20	11. 80	8. 28	163. 04
26	John G. F. Moale	8. 43	33. 12	9. 69	37. 65	31. 80	17. 10	14. 80	10. 28	162. 87
27	William H. McGrann	8. 34	35. 52	9. 36	38. 10	32. 88	16. 25	12. 76	8. 32	161. 53
28	Thomas J. Senn	9. 51	32. 64	8. 43	44. 40	33. 60	14. 20	10. 08	8. 56	161. 42
29	George H. Shepard	8. 94	35. 16	8. 10	43. 65	33. 48	16. 35	11. 36	4. 20	161. 24
30	William D. Brotherton	9. 21	36. 48	9. 69	37. 65	32. 28	14. 45	12. 16	8. 08	160. 00
31	Jay H. Sypher	7. 80	33. 84	9. 48	39. 00	34. 80	15. 60	12. 20	6. 54	159. 26
32	Richard H. Leigh	8. 82	31. 56	9. 87	39. 15	32. 16	14. 55	12. 64	9. 48	158. 23
33	Albert S. McLemore	8. 61	32. 88	9. 24	37. 65	30. 24	18. 15	11. 44	6. 94	155. 15
34	Harry E. Smith	7. 80	31. 56	10. 11	37. 50	32. 04	13. 25	13. 84	8. 58	154. 68
35	George Richards	8. 04	31. 20	8. 70	39. 30	33. 00	13. 85	13. 24	5. 92	153. 25
36	James F. Carter	8. 61	33. 24	9. 48	37. 95	30. 96	14. 40	11. 32	6. 86	152. 82
37	William M. McKelvy	8. 67	30. 36	9. 30	37. 65	30. 00	14. 55	11. 44	10. 08	152. 05
38	George W. Laws	7. 95	32. 28	8. 79	39. 00	31. 68	14. 05	11. 32	6. 18	151. 25
39	Horace G. Macfarland	7. 53	32. 16	8. 46	37. 65	33. 96	15. 20	10. 20	4. 19	149. 35
40	David V. H. Allen	8. 22	31. 44	8. 85	37. 65	31. 32	14. 80	10. 48	6. 58	149. 34
†	Adelbert Althouse	9. 87	33. 72	9. 63	36. 00	34. 80	14. 50	13. 08	9. 12	160. 72
†	Frank H. Kochersperger	8. 55	34. 20	11. 13	36. 15	31. 80	15. 00	14. 40	8. 46	159. 69
†	Charles F. Preston	8. 34	30. 48	9. 06	37. 65	29. 16	16. 10	12. 86	9. 46	153. 13
†	William H. Ford	8. 58	31. 20	9. 60	36. 30	29. 76	15. 25	12. 24	9. 98	152. 91
†	Dion Williams	7. 59	32. 40	8. 97	34. 95	31. 08	15. 20	12. 84	8. 70	151. 73

Merit-roll of naval cadets, second class (52 members), etc.—Continued.

Order of annual merit.	NAME.	Astronomy, navigation, and surveying.	Steam machinery, marine engines, and boilers.	Practical work in steam engineering.	Mechanics and applied mathematics.	Physics.	Modern languages.	Mechanical drawing.	Discipline.	Aggregate.
	Maxima	12	48	12	60	48	20	16	12	228
†	Irving Blount	9.21	32.76	9.24	36.45	30.12	14.75	11.24	6.26	150.03
†	Lewis H. Gross	8.82	30.60	9.12	38.55	30.60	13.70	9.76	7.66	148.81
†	Elisha Theall	7.89	30.00	8.88	37.50	29.40	14.10	12.24	7.18	147.19
§	Roby Robinson	7.65	30.36	9.33	35.70	26.88	13.55	10.88	7.36	141.71
§	Charles W. Lyle	6.75	30.00	9.12	33.45	29.64	13.40	10.76	8.00	141.12
<i>s</i> †	John T. Myers .....	.....	.....	8.19	.....	.....	.....	.....	.....	.....
<i>b</i>	Kagekazu Nire .....	.....	.....	9.51	.....	.....	.....	12.32	9.22	.....

s, sick. *b*, deficient; continued with class.

Merit-roll of naval cadets, third class (54 members), annual examination, June, 1890.

Order of annual merit.	Name.	Trigonometry, analytical geometry, and descriptive geometry.	Chemistry and physics.	English, history, and the Constitution.	French, Spanish, and German.	Mechanical drawing.	Discipline.	Aggregate.
	Maxima.....	48	24	24	24	24	8	152
*1	John D. Beuret.....	48.36	22.56	21.96	22.56	22.92	5.66	144.02
*2	Joseph E. McDonald.....	47.76	20.40	19.98	19.32	20.28	6.67	134.41
*3	Homer L. Fergusson.....	43.44	20.22	21.42	22.62	19.68	5.65	133.03
*4	John R. Y. Blakely.....	46.44	20.94	18.42	20.70	22.02	3.27	131.79
*5	Luke McNamee.....	42.48	19.86	21.90	20.40	20.22	5.84	130.70
*6	William C. Dawson.....	40.44	19.44	22.56	23.94	18.84	5.44	130.66
7	George C. Day.....	42.00	20.52	21.00	18.48	19.92	6.16	128.08
8	Joseph R. Campbell.....	38.64	21.72	20.22	19.74	21.36	5.68	127.36
9	Gregory C. Davison.....	42.72	20.16	20.58	17.82	19.80	6.11	127.19
10	Charles T. Jewell.....	43.20	19.62	20.64	18.72	19.38	4.40	125.96
11	Charles L. Hussey.....	39.96	18.24	20.46	19.26	18.90	6.50	123.32
12	Holden A. Evans.....	38.16	17.40	21.36	19.44	17.88	6.96	121.20
13	Howard W. Huntington.....	38.16	17.70	19.86	17.52	20.82	6.50	120.56
14	Frederick A. Traut.....	34.56	18.96	18.90	22.38	19.68	6.03	120.51
15	Frederick L. Sawyer.....	33.84	21.42	20.46	19.20	19.20	6.23	120.38
16	Leon S. Thompson.....	36.72	17.10	18.54	20.40	18.36	6.67	117.79
17	John S. Porter.....	39.00	20.10	19.20	17.52	18.90	2.61	117.33
18	William E. Hoblitzelle.....	37.56	16.14	17.64	17.28	22.08	6.24	116.94
19	James Shehan.....	35.88	15.72	18.12	19.98	20.82	5.21	115.73
20	Emmett R. Pollock.....	35.64	16.08	19.02	21.12	18.12	5.51	115.49
21	Arthur Rice.....	33.36	15.30	19.56	19.14	21.84	6.24	115.44
22	Theodore H. Low.....	34.32	17.76	20.58	18.66	19.20	4.35	114.87
23	John F. Hines.....	35.40	17.22	18.12	16.50	20.04	6.85	114.13
24	Thomas S. Borden.....	31.92	16.68	20.04	20.04	18.54	4.99	112.21
25	Walter Ball.....	36.72	18.06	17.28	17.64	18.48	2.61	110.79
26	Thomas L. Stitt.....	32.52	16.32	19.26	17.94	18.30	6.43	110.77
27	Stanford E. Moses.....	30.96	15.72	18.90	19.62	19.38	6.14	110.72
28	Fred R. Payne.....	36.96	17.76	18.84	18.30	18.36	-0.51	109.71
29	Austin R. Davis.....	34.56	17.94	17.10	17.94	19.98	2.12	109.64
30	Powers Symington.....	31.32	17.10	19.38	20.88	16.56	4.37	109.61
31	George H. Mather.....	35.28	17.04	17.94	16.68	17.28	5.22	109.44
32	Aaron L. Gamble.....	33.72	16.50	18.54	18.54	17.64	4.32	109.26
33	Edgar E. Arison.....	33.12	16.20	17.04	20.40	17.28	4.72	108.76
34	Robert K. Crank.....	31.08	16.50	19.50	20.22	18.42	2.46	108.18
35	Yates Sterling, jr.....	35.88	17.28	16.98	17.22	16.80	3.52	107.68
36	Joel R. P. Pringle.....	31.32	15.24	17.88	20.76	16.74	5.22	107.16
37	Frederick W. Stopford.....	35.04	17.16	18.36	19.02	16.98	-0.40	106.16
38	Christian C. H. Zillman.....	30.48	15.06	19.62	17.76	17.16	5.78	105.86
39	Raymond De L. Hasbrouck.....	34.08	16.92	16.50	16.80	19.62	1.78	105.70
40	George Mallison.....	32.64	17.82	16.56	16.86	16.50	4.91	105.29
41	Edward S. Kellogg.....	32.16	15.66	16.26	15.72	19.26	6.22	105.28
42	Charles F. Macklin.....	35.52	15.42	15.24	17.04	16.50	4.15	103.87
*43	Charles T. Pollard, jr.....	30.72	16.26	17.04	19.14	15.90	4.45	103.51
44	Philip M. Bannon.....	30.48	15.06	17.22	15.78	18.48	5.35	102.37
45	Stanley P. Dennett.....	30.72	15.00	15.48	16.98	16.86	6.27	101.31

Merit-roll of naval cadets, third class (54 members), etc.—Continued.

Order of annual merit.	Name.	Trigonometry, analytical geometry, and descriptive geometry.	Chemistry and physics.	English, history, and the Constitution.	French, Spanish, and German.	Mechanical drawing.	Discipline.	Aggregate.
	Maxima	48	24	24	24	24	8	152
46	Washington D. Gibbs.....	33.36	16.14	15.90	17.22	15.42	0.88	98.92
†	Benjamin B. McCormick.....	29.64	14.40	19.98	20.10	19.92	6.21	110.25
†	Charles Allen.....	31.44	14.58	17.40	17.22	21.00	4.94	106.58
†	John H. Russell, jr.....	33.72	14.76	17.10	15.96	18.18	5.91	105.63
r†	George Wedekind.....	30.24	14.22	17.04	17.28	19.14	6.01	103.96
r†	Josiah G. Sawyer.....	30.60	14.64	15.42	16.02	18.90	6.40	101.98
†	Joseph C. Breckinridge.....	31.20	14.22	18.72	17.82	15.54	4.43	101.93
†	Beriah E. Jones.....	29.64	14.34	16.62	15.84	18.06	4.67	99.17
†	Warren Rodney.....	29.28	14.40	16.80	16.38	16.20	4.98	98.04

Merit-roll of naval cadets, fourth class (72 members), annual examination, June, 1890.

Order of annual merit.	NAME.	English and history.	Algebra and geometry.	French, Spanish, and German.	Discipline.	Aggregate.
	Maxima.	24	24	24	4	76
*1	Eugene L. Bisset	21.96	23.28	21.66	3.26	70.16
*2	Thomas D. Parker	21.96	20.16	22.38	3.40	67.90
*3	Edwin A. Elder	21.06	22.20	21.36	3.08	67.70
*4	Louis J. Magill	19.86	21.12	22.50	3.28	66.76
*5	Henry H. Ward	19.86	22.32	21.12	3.26	66.56
*6	Maurice B. Peugnet	21.96	16.56	24.42	3.58	66.52
*7	W. V. N. Powelson	20.04	22.68	20.64	3.13	66.49
*8	Frank H. Clark, jr.	20.04	21.96	19.62	3.44	65.06
*9	Joseph C. Graff	19.62	20.16	21.42	3.41	64.61
10	William G. Powell	18.78	19.08	22.20	3.15	63.21
11	Thomas S. Kellogg	20.16	18.84	20.94	3.15	63.09
12	Charles J. Lang	20.04	19.26	20.58	3.07	62.95
13	Hubbard M. Feild	20.58	20.10	19.38	2.75	62.81
14	William S. Montgomery	19.32	22.56	17.34	3.32	62.46
15	Claude E. Fitch	18.90	19.26	20.40	3.20	61.76
16	John P. J. Ryan	19.50	17.88	21.00	3.31	61.69
17	Walter S. Crosley	18.42	20.82	18.66	3.50	61.40
18	Daniel C. Nutting, jr.	20.22	18.72	19.02	3.43	61.39
19	William K. Gise	20.94	17.34	19.14	3.29	60.71
20	William S. Valentine	19.86	15.24	22.14	3.43	60.67
21	John S. Doddridge	20.40	19.68	16.98	3.19	60.25
22	Frank L. Chadwick	19.74	18.78	18.48	3.16	60.16
23	Edward H. Campbell	17.76	21.06	18.06	3.20	60.08
24	Allen M. Cook	19.86	19.02	17.94	3.00	59.82
25	James C. Hooker	19.14	15.90	21.00	3.45	59.49
26	Chester Wells	18.78	18.42	19.56	2.63	59.39
27	Percey N. Olmstead	19.02	18.54	18.54	3.28	59.38
28	Orton P. Jackson	20.16	18.18	17.82	2.94	59.10
29	Thomas S. Wilson	20.46	18.18	16.98	3.19	58.81
30	John R. Brady	18.90	18.00	18.66	2.12	57.68
31	Peter C. Hains, jr.	18.90	16.44	19.14	3.11	57.59
32	James S. Coleman	16.56	18.48	19.20	3.20	57.44
33	John A. Crocker	19.08	17.34	17.64	3.27	57.33
34	Frank D. W. Read	19.68	15.30	19.26	3.07	57.31
35	Richard S. Douglas	19.14	16.62	18.72	2.77	57.25
36	David M. Berry	18.12	17.22	17.76	3.57	56.67
37	Graham Shaw	18.84	15.96	19.26	1.94	56.00
38	Frank B. Upham	17.52	16.50	18.54	3.37	55.93
39	John R. Morris	17.04	18.66	17.34	2.87	55.91
40	Martin E. French	18.00	17.22	17.46	3.19	55.87
41	Andre N. Procter	17.04	19.44	16.96	2.28	55.74
42	William G. Groesbeck	17.28	15.48	20.46	2.34	55.56
43	William B. Logan	17.34	17.04	18.00	3.07	55.45
44	Gerald L. Holsinger	18.24	16.92	16.62	3.15	54.93
45	John L. Sticht	17.88	17.88	16.26	2.72	54.74

Merit roll of naval cadets, fourth class (72 members), etc.—Continued.

Order of annual merit.	NAME.	English and history.	Algebra and geometry.	French, Spanish, and German.	Discipline.	Aggregate.
	Maxima	24	24	24	4	76
46	Worth Bagley	17.76	15.66	18.30	2.89	54.61
47	Richard Sturdevant	19.32	15.54	16.38	3.37	54.61
48	Guy T. Scott	17.94	15.78	17.76	3.04	54.52
49	Walter B. Whitman	18.54	15.60	16.86	3.43	54.43
50	Alfred A. McKethan	17.16	17.22	16.74	3.28	54.40
51	Edward C. Stearns	18.66	15.60	16.74	3.33	54.33
52	Louis G. Asbury, jr.	16.80	15.66	19.26	2.87	53.99
53	Henry A. Pearson	18.00	15.48	16.26	3.46	53.20
54	Joseph A. Perry	16.38	16.62	16.26	3.44	52.70
55	Christopher C. Fewel	16.74	16.38	16.20	3.09	52.41
56	Marvin Carver	18.06	15.66	15.42	3.15	52.29
57	James B. Potter	16.92	15.30	16.86	2.72	51.80
58	Lewis C. Baird	16.62	16.08	16.44	2.24	51.38
59	Alfred A. Pratt	17.16	15.12	16.14	2.86	51.28
60	William C. Wishart	15.66	15.00	17.04	3.16	50.86
d61	Andrew J. Cruse, jr.	16.44	15.84	16.56	1.56	50.40
†	Henry B. Price	19.02	14.58	18.06	3.43	55.09
§	Walter J. Manion	17.04	14.76	19.08	2.44	53.32
br	George W. Ryan	16.20	14.52	18.78	3.33	52.83
†	Lewis B. Jones	16.20	14.46	16.92	3.10	50.68
‡	Arthur C. Townsend	16.92	14.34	15.72	3.25	50.23
s¶	Ernest L. Bennett					
p	John A. Cobb, jr.					
s¶	Henry L. Dailey					
s¶	Leland F. James					
s¶	Moulton K. Johnson					
r	William B. Randolph					

s Sick.

REGULATIONS

GOVERNING

THE ADMISSION OF CANDIDATES INTO THE NAVAL ACADEMY AS NAVAL CADETS.

NOMINATION.

I. The students at the Naval Academy shall be styled *naval cadets*.—(*Rev. Stat.*, § 1512, and act of Congress approved August 5, 1882.)

II. There shall be allowed at said Academy one naval cadet for every Member or Delegate of the House of Representatives, one for the District of Columbia, and ten at large.—(*Rev. Stat.*, § 1513, and act of Congress approved June 17, 1878.)

III. "The Secretary of the Navy shall, as soon after the fifth of March in each year as possible, notify, in writing, each Member and Delegate of the House of Representatives of any vacancy that may exist in his district. The nomination of a candidate to fill said vacancy shall be made upon the recommendation of the Member or Delegate, if such recommendation is made by the first day of July of that year; but, if it is not made by that time, the Secretary of the Navy shall fill the vacancy. The candidate allowed for the District of Columbia and all the candidates appointed at large shall be selected by the President."—(*Rev. Stat.*, § 1514.)

IV. Candidates allowed for Congressional districts, for Territories, and for the District of Columbia must be actual residents of the districts or Territories, respectively, from which they are nominated. *And all candidates must, at the time of their examination for admission, be not less than fifteen nor more than twenty years of age, and physically sound, well formed, and of robust constitution.*—(*Rev. Stat.*, § 1517, and act of Congress approved March 2, 1889.)

V. "All candidates for admission into the Academy shall be examined according to such regulations and at such stated times as the Secretary of the Navy may prescribe. Candidates rejected at such examinations shall not have the privilege of another examination for admission to the same class unless recommended by the Board of Examiners."—(*Rev. Stat.*, § 1515.)

VI. "When any candidate who has been nominated upon the recommendation of a Member or Delegate of the House of Representatives is found, upon examination, to be physically or mentally disqualified for admission, the Member or Delegate shall be notified to recommend another candidate, who shall be examined according to the provisions of the preceding section."—(*Rev. Stat.*, § 1516.)

VII. "Naval cadets found deficient at any examination shall not be continued at the Academy or in the service unless upon the recommendation of the academic board."—(*Rev. Stat.*, § 1519.)

VIII. "The academic course of *naval cadets* shall be six years."—(*Rev. Stat.*, § 1520.)

IX. Candidates who may be nominated in time to enable them to reach the academy by the fifteenth of May will receive permission to present themselves on that date to the superintendent for examination for admission. Those who may not be nominated in time to present themselves at the May examination will be examined on the first of September following.

When either of the above dates shall fall on Sunday the candidates shall present themselves on the Monday following.

Candidates will be required to enter the academy immediately after passing the prescribed examinations.

No leaves of absence will be granted to cadets of the fourth class.

EXAMINATION.

X. Candidates will be examined physically by a board composed of three medical officers of the Navy. Any one of the following conditions will be sufficient to cause the rejection of a candidate; viz.,

Feeble constitution, inherited or acquired;

Retarded development;

Impaired general health;

Decided cachexia, diathesis, or predisposition to disease;

Any disease, deformity, or result of injury that would impair efficiency; such as—

Weak or disordered intellect;

Cutaneous or communicable disease;

Unnatural curvature of spine, torticollis, or other deformity;

Inefficiency of either of the extremities or large articulations from any cause;

Epilepsy or other convulsions within five years;

Impaired vision, disease of the organs of vision, imperfect color sense;

Impaired hearing or disease of the ear;

Chronic nasal catarrh, ozæna, polypi, or great enlargement of the tonsils;

Impediment of speech to such an extent as to impair efficiency in the performance of duty;

Disease of heart or lungs or decided indications of liability to cardiac or pulmonary affections;

Hernia or undescended testis;

Varicocele, sarcocele, hydrocele, stricture, fistula, hemorrhoids, or varicose veins of lower limbs;

Disease of the genito-urinary organs;

Chronic ulcers, ingrowing nails, large bunions or other deformity of feet.

Attention will also be paid to the stature of the candidate, and no one *manifestly* under size for his age will be received at the academy. In the case of doubt about the physical condition of the candidate any marked deviation from the usual standard of height or weight will add materially to the consideration for rejection. Five feet will be the minimum height for the candidate.

Table showing the minimum height for admission for each year between the ages of fifteen and twenty.

Age	15	16	17	18	19	20
Height (inches).....	60	60½	62	62½	62¾	63

Table showing mean height, weight and chest-girth of lads between the ages of fifteen and twenty years.

Age.	Height (without shoes).	Weight (including clothes).	Chest-girth (chest empty).
	<i>Inches.</i>	<i>Pounds.</i>	<i>Inches.</i>
15.....	63½	110	31
16.....	66½	126	33
17.....	68	140	34
18.....	68½	146	34½
19.....	68¾	148	34¾
20.....	69	150	35

XI. Candidates will be examined mentally by the academic board in reading, writing, spelling, arithmetic, geography, English grammar, United States history, and algebra. Deficiency in any one of these subjects will be sufficient to insure the rejection of the candidate.

GENERAL CHARACTER OF THE MENTAL EXAMINATION.

READING AND WRITING.—Candidates must be able to read understandingly, and with proper accent and emphasis, and to write legibly, neatly, and rapidly.

SPELLING.—They must be able to write from dictation paragraphs from standard pieces of English literature, both prose and poetry, sufficient in number to test fully their qualifications in this branch. The spelling throughout the examination will be considered in marking the papers.

ARITHMETIC.—The candidate will be required—

To express in figures any whole, decimal, or mixed number; to write in words any given number; to perform with facility and accuracy the various operations of addition, subtraction, multiplication, and division of whole numbers whether abstract or concrete, and to use with facility the tables of money, weights, and measures in common use, including English money.

To reduce compound numbers from one denomination to another, and to express them as decimals, or fractions of a higher or lower denomination; to state the number of cubic inches in a gallon and the relation between the Troy and Avoirdupois pounds and to reduce differences of time to differences of longitude and *vice versa*.

To define prime and composite numbers; to give the tests of divisibility by 3, 5, 7, 9, 11, 25, and 125; to resolve numbers into their prime factors, and to find the least common multiple and the greatest common divisor of large as well as of small numbers.

To be familiar with all the processes of common and decimal fractions, and to give clearly the reasons for such processes, and to be able to use the contracted methods of multiplication and division given in the ordinary text-books on arithmetic.

To define ratio and proportion, and to solve problems in simple and compound proportion.

To solve problems involving the measurement of rectangular surfaces and of solids, to find the square roots and the cube roots of numbers, and to solve simple problems under percentage, interest, and discount.

The candidates are required to possess such a thorough understanding of all the fundamental operations of arithmetic as will enable them to apply the various principles to the solution of any complex problem which can be solved by the methods of arithmetic; in other words, they must possess such a complete knowledge of arithmetic as will enable them to proceed at once to the higher branches of mathematics without further study of arithmetic.

ALGEBRA.—The examination in *algebra* will be elementary in character, and will be limited to questions and problems upon the fundamental rules, factoring, algebraic fractions, and simple equations of one or more unknown quantities.

GRAMMAR.—In *English grammar* candidates must exhibit a familiarity with all the parts of speech and the rules in relation thereto; they must be able to parse any ordinary sentence given to them, and generally must understand those portions of the subject usually taught and comprehended under the heads of orthography, etymology, and syntax.

The question will usually be arranged in three divisions. The first division will contain questions somewhat like these:

Explain the uses of the objective case. What verbs have distinction of voice? Give the possessive plural of *sea*, *valley*, *basis*, *stratum*, *bandit*.

The second division will contain one or more sentences to be parsed; *e. g.*,

"They were always a strange family; they rarely acted like other people; their hearts were in the right place, but their heads always seemed to be doing anything but what they

ought." Such a sentence must be parsed *fully*, giving the part of speech, and kind, case, voice, mood, tense, number, person, degree of comparison, etc., as the case may be, of each word, and its relation to the other words; thus,—

Strange is a descriptive adjective, positive degree. It qualifies the noun *family*.

Comparative, *stranger*.

Superlative, *strangest*.

Acted, an intransitive verb, regular (or weak) in conjugation, indicative mood, past tense, third person, plural number. Its subject is *they*.

The third division will contain a number of incorrect sentences to be corrected; thus,—

1. *Describe the sources from which our knowledge of these events are derived.* 2. *How sweetly their voices sound!* 3. *Try and do as you was told!* 4. *I should hare liked to have been there and seen it.* 5. *There's a sweet little cherubim sits up aloft to keep watch for the life of Poor Jack!*

Among these, correct sentences will sometimes be introduced to test more thoroughly the knowledge of the candidate.

Since the school grammars used in different parts of the country vary among themselves in their treatment of certain words, an answer approved by any grammar of good repute will be accepted.

GEOGRAPHY.—Candidates will be required to pass a satisfactory examination, written or oral, or both, in descriptive geography, particularly of our own country. Questions will be given under the following heads: the definitions of latitude and longitude; the zones; the grand divisions of the land and water; the character of coast lines; the direction and position of important mountain-chains and the locality of the higher peaks; the position and course of the principal rivers, their tributaries, and the bodies of water into which they flow; the position of important seas, bays, gulfs, and arms of the sea; the position of independent states, their boundaries and capital cities; the position and direction of great peninsulas and the situation of important and prominent capes, straits, sounds, channels, and the most important canals; great lakes and inland seas; position and political connection of important islands, and colonial possessions; localities of cities of historical, political, or commercial importance, attention being especially called to the rivers and bodies of water on which cities are situated; the course of a vessel in making a voyage between well known ports.

The candidate's knowledge of the geography of the *United States* can not be too full or specific on all the points referred to above. Accurate knowledge will also be required of the position of the country with reference to other states, and with reference to latitude and longitude, of the boundaries and relative position of the States and Territories, of the name and position of their capitals, and of other important cities and towns.

HISTORY.—Candidates should be familiar with as much of the history of the United States as is contained in the ordinary school histories.

The examination will be either written or oral, or both, and questions of the same general character as the following will be given:

1. Name the earliest European settlements within the present limits of the United States, and give their positions. When and by whom were these settlements made?

2. Explain the three forms of government in the colonies; royal, proprietary, and charter. Name the colonies that originally existed within the present limits of Massachusetts; of Connecticut. When were these colonies united? What did the colony of Pennsylvania include? When was it divided?

3. State the leading events of the colonial wars, and give the results of each war.

4. What were the remote and immediate causes of the Revolution. Explain the navigation acts, the stamp act, writs of assistance. Name the principal battles and other leading events in the wars of the United States, giving the names of commanding officers and stating the results of the battles.

5. Give an account of the formation and adoption of the Constitution.

Give the names of the Presidents, in order, and the leading events in each administration.

ADMISSION.

XII. Candidates who pass the physical and mental examinations will receive appointments as naval cadets, and become students at the academy. Each cadet will be required to sign articles by which he binds himself to serve in the United States Navy eight years (including his time of probation at the naval academy) unless sooner discharged. The pay of a naval cadet is \$500 a year, commencing at the date of his admission.

XIII. Cadets will supply themselves, immediately after their admission, with the following articles; viz.,

One dress jacket.....	\$17.50	One jack knife	\$0.75
One blouse	10.50	Six sheets	3.36
Two pairs trousers	19.00	Hammock clews.....	.58
Two working suits	1.86	One pair of bathing trunks .....	.20
One overcoat.....	20.50	Three pairs of white thread gloves .....	.60
One rubber coat.....	4.00	Two black silk neckties.....	.64
One rubber hat .....	.53	Two clothes bags.....	.46
Two pairs of regulation leggins..	1.40	One hammock mattress.....	2.85
One parade cap.....	2.55	aOne requisition book.....	.40
One knit cap.....	.66	aOne pass book.....	.40
One mug.....	.10	aStencil, ink, and brush .....	.45
One soap box.....	.62	aOne bottle of indelible ink.....	.18
One laundry book.....	.34	aOne wash basin and pitcher.....	.88
One pair of blankets.....	2.90	aOne pair of gymnasium slippers.....	1.10
Two pairs of high shoes.....	6.84	*One whisk.....	.13
One pair of overshoes.....	.55	*One coarse comb.....	.05
Eight white shirts.....	8.00	*One cake of soap.....	.10
Twelve linen collars.....	2.04	*One hair brush .....	.50
Eight pairs of cuffs.....	2.00	*Stationery .....	.50
*Eight pairs of socks.....	1.84	*Twelve white handkerchiefs	2.76
*Eight towels.....	2.00	*One pair of suspenders.....	.40
*Shaving outfit.....	1.55	*Four night shirts	2.52
*Four pairs of drawers (winter)..	4.00	*One tooth brush.....	.23
bFour pairs of drawers (summer)..	1.52	*Thread and needles.....	.19
*Four undershirts (winter).....	4.00	*Blacking brush and blacking... ..	.30
bFour undershirts (summer).....	1.52	*Nail brush .....	.25
One hand glass.....	.36		
			20.78
	118.68		

When moving into cadet quarters, cadets will supply themselves with the following articles; viz.,

a Two bedspreads	\$2.84	One mirror.....	\$1.20
a Two pairs of drill gloves.....	1.00	a One rug.....	.80
a One slop jar.....	.93	a One hair mattress.....	5.10
a Two spatter-c oths.....	.66	a One broom.....	.25
One hair pillow.....	.75	Six pillow cases	1.38
	6.18		8.73

Cadets will supply themselves with the following additional articles when preparing to embark on board the practice ship; viz.,

Three working suits.....	\$2.79	One pair rubber leggins.....	\$0.40
Four woolen shirts.....	7.40	One pair of high shoes.....	3.42
Three white sailor hats.....	1.14	One knit cap.....	.66
	11.33		4.48

Articles marked *a* will not be taken on board the practice ship.

Of the articles marked *b* cadets entering in September must have four each.

The articles marked *, not being required to conform to a standard pattern, may be brought by the cadet from home, but all other articles must conform to the regulations, and must therefore be supplied by the storekeeper.

Each naval cadet must on admission deposit with the pay-officer the sum of \$20, for which he will be credited on the books of that officer, to be expended by direction of the superintendent in the purchase of text-books and other authorized articles beside those enumerated in the preceding article.

All deposits for clothing and the entrance deposit of \$20 must be made before a candidate can be received into the academy.

SUMMARY OF EXPENSES.

Deposit for clothing, etc.....	\$170. 18
Deposit for books, etc.....	20. 00
Total amount required	190. 18

The value of clothing brought from home is to be deducted from this amount.

Each naval cadet *one month after admission* will be credited with the amount of his actual expenses in traveling from his home to the academy.

XIV. A naval cadet who voluntarily resigns his appointment within a year of the time of his admission to the academy will be required to refund the amount paid him for traveling expenses.

COURSE OF INSTRUCTION.

[Reference books are marked (*).]

FIRST YEAR—FOURTH CLASS.

FIRST TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Mathematics.</i>	4	4	ALGEBRA: Fundamental operations; reduction and conversion of fractional and surd quantities; reduction and solution of equations of the first and second degrees; inequalities; involution and evolution.	Todhunter's Higher Algebra.
	2	4	GEOMETRY: Geometry of the straight line, of the circle, and of the plane; theory of proportion; properties of similar figures.	Chauvenet's Geometry.
<i>English Studies, History, and Law.</i>	2	4	ENGLISH: The structure and historical development of the English language; syntax; analysis of sentences; punctuation and capitals; exercises in the composition of letters.	Whitney's Essentials of English Grammar. Hart's Punctuation. Webster's Dictionary.*
	3	4	HISTORY: Outlines of history, especially the history of Greece and Rome, and of the states of western Europe; historical geography; important points in naval history, by notes or lectures.	Swinton's Outlines of the World's History. Labberton's Historical Atlas.*
<i>Modern Languages.</i>	5	4	FRENCH: "Natural method of teaching languages."	La Parole Française, Sauveur and Van Daell. Bellows's Pocket Dictionary.*

FIRST YEAR—FOURTH CLASS—Continued.

SECOND TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Mathematics.</i>	3	4	ALGEBRA: Course for first term continued. Development of algebraic functions by means of indeterminate co-efficients and the binomial theorem; permutations and combinations; summation of series; continued fractions; logarithms; exponential equations; theory of equations, including the solution of numerical equations.	Hall and Knight's Higher Algebra. Bowditch's Useful Tables.
	2	4	GEOMETRY: Course for first term continued. Spherical geometry; the cone and the cylinder; mensuration of rectilinear figures, and of the sphere, cone, and cylinder; application of algebra to determinate geometry.	Chauvenet's Geometry.
<i>English Studies, History, and Law.</i>	2	4	ENGLISH: Rhetoric and composition; choice and use of words; kinds of composition; narration and description; argumentative composition; exercises in the composition of letters and telegrams. Themes.	A. S. Hill's Rhetoric. Ayres's Orthoëpist.* Ayres's Verbalist.* Webster's Dictionary.*
	3	4	HISTORY: Progress of colonial development in America, and the history of the United States; important points in the naval history of the United States, by notes or lectures. Contemporary history, including the comparative study of governments, institutions, and political geography.	Eliot's History of the United States Mitchell's Atlas.* The School Herald. Mitchell's Atlas.*
<i>Modern languages.</i>	5½	4	FRENCH: "Natural Method." SPANISH: (Given as an advanced course.) "Natural Method." GERMAN: (Given as an advanced course.) "Natural Method."	Bercy: La Langue Française, 1 ^{re} partie. Histoire d'un Conscrit. Bellows's Pocket Dictionary.* Worman's First Spanish Book. Seoane's Dictionary.* Dreyspring's Cumulative Method and German Verb Drill. Whitney's Dictionary.*

SECOND YEAR—THIRD CLASS.

FIRST TERM.

Department.	No. of recitations a week.	No. of months.	Subjects.	Text-books.
<i>Mathematics.</i>	1	4	DESCRIPTIVE GEOMETRY: Orthographic projections; representation of points, lines, and planes; problems relating to the right line and the plane; representations of surfaces of the second order.	Church's Descriptive Geometry.
	4	4	TRIGONOMETRY: Measures of arcs and angles; trigonometric functions; analytical investigations of trigonometric formulas, with their application to all the cases of plane and spherical triangles, construction and use of trigonometric tables; inverse trigonometric functions; De Moivre's theorem; solution of trigonometric equations; practical applications of trigonometry to the solution of plane and spherical triangles, the astronomical triangle, and the measurements of heights and distances.	Chauvenet's Trigonometry; Todhunter's Trigonometry. Bowditch's Useful Tables.
<i>English Studies, History, and Law.</i>	1	4	ENGLISH: Faults in diction and their remedies; selection and arrangement; principles of composition; exercises in the composition of official dispatches, letters, and telegrams; themes.	Abbott's How to Write Clearly. Ayres's Orthoëpist.* Ayres's Verbalist.* Webster's Dictionary.*
	1	4	HISTORY: Contemporary history, including the comparative study of governments, institutions, and political geography.	The School Herald. Mitchell's Atlas.*
	2	4	LAW: Constitution of the United States.	Andrews's Manual of the Constitution.
<i>Modern Languages.</i>	3	4	FRENCH: "Natural method."	Bücher's Series of French Plays. Bercy La Langue Française 2 ^{me} Partie. Bellows's Dictionary.*
			SPANISH: (Given as an advanced course.) "Natural method."	Sauveur Petite Grammaire. Ybarras English-Spanish Method.
			GERMAN: (Given as an advanced course.) "Natural method."	Dreyspring's Cumulative Method and German Verb Drill.
<i>Mechanical Drawing.</i>	4	4	MECHANICAL DRAWING: Sketching from models; the use of instruments; construction of scales; notation and symbols used in mechanical drawings; construction of rectilinear and curved fig-	Tomkin's Machine Construction.*

SECOND YEAR—THIRD CLASS—Continued.

FIRST TERM—continued.

Department.	No. of recitations a week.	No. of months.	Subjects.	Text-books.
<i>Mechanical Drawing</i> (continued).			ures to scale; drawing section lines; round writing. Drawing exercises in descriptive geometry, including the projections of lines and the representation of planes and geometrical solids, and the projections and sections of surfaces and solids.	

SECOND TERM.

<i>Physics and Chemistry.</i>	5	4	<p>PHYSICS: An elementary course intended to present the leading principles and the correlation of the branches of physical science, to which more time is devoted during the second and first class years. Constant practice with the fundamental and derived units of the C. G. S. system. Practical work in the physical laboratory; experiments illustrating the daily recitations and exact measurements of length, mass, volume, and specific gravity. Lectures.</p> <p>CHEMISTRY: Recitations in general and organic chemistry. Practical work in the chemical laboratory; experiments illustrating the daily recitations, and the determination of simple salts, acids, and bases. Lectures.</p>	<p>Daniell's Principles of Physics.</p> <p>Practical Physics, by Stewart and Gee.</p> <p>Remsen's General Chemistry.</p> <p>Remsen's Organic Chemistry.</p> <p>Lecture Notes.</p>
<i>Mathematics.</i>	1	4	<p>DESCRIPTIVE GEOMETRY: Course for first term continued. Warped surfaces, and surfaces of revolution; development of single-curved surfaces; intersection of surfaces; tangent lines and planes; projections of the sphere; axometric projections; shades and shadows.</p>	Church's Descriptive Geometry.
	4	4	<p>ANALYTICAL GEOMETRY: Equations of the straight line and of the conic sections; transformation of coordinates; properties of the conic sections; equations to tangents and normals; determination of loci; discussion of the general equation of the second degree; equations of the plane, of lines in space, and of surfaces of the second order; the principal properties of surfaces of the second order; discussion of the general equation of the second degree in three variables.</p>	C. Smith's Conic Sections; Aldie's Solid Geometry.

SECOND YEAR—THIRD CLASS—Continued.

SECOND TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Modern Languages.</i>	2	4	FRENCH: Continuation of first term course. SPANISH: Continuation of first term course. GERMAN: Continuation of first term course.	Same as for the first term.
<i>Mechanical Drawing.</i>	$2\frac{1}{4}$	4	MECHANICAL DRAWING: Sketching from models; representation of objects by projections; drawing the projections of models to scale; oblique projections; isometrical drawing; drawing screws, bolts, nuts, and gearing; round writing. Drawing exercises in descriptive geometry, including the intersections of surfaces, development of single-curved surfaces, and problems on the surfaces of revolution.	Tomkin's Machine Construction.*

THIRD YEAR—SECOND CLASS.

FIRST TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Seamanship, Naval Construction. and Naval Tactics.</i>	1	4	SEAMANSHIP: Description and uses of sails, their fittings and appliances; handling sails, port drills and evolutions; management under sail; duties of officers and crew.	Luce's Seamanship.
<i>Steam Engineering.</i>	3	4	PRINCIPLES OF MECHANISM: Marine engines and boilers. Properties of heat and its application to water; combustion; laws and properties of steam; types of marine boilers; comparative efficiency; names and uses of their attachments; hydrometers; scale and its prevention; types of marine engines including condensers and pumps, with explanation of the use of all the parts; screw propellers and paddle wheels; the indicator and its diagrams; power of the engine and computations relating thereto; casualties; care and management of steam machinery.	Goodeve's Elements of Mechanism. Sennett's Marine Steam Engine.
<i>Mechanics and Applied Mathematics.</i>	5	2	DIFFERENTIAL CALCULUS: Functions: rates; differentials of functions; indeterminate forms; series; maxima and minima; geometrical applications; functions of two or more variables.	Rice and Johnson's Differential Calculus.
	5	2	INTEGRAL CALCULUS: The methods of integration; definite integrals; quadrature of surfaces; cubiture of volumes; rectification of curves; centres of gravity; moments of inertia; planimeters; rules for the approximate determination of areas and volumes; differential equations.	Johnson's Integral Calculus. Johnson's Differential Equations.
<i>Physics and Chemistry.</i>	4	4	PHYSICS: Recitations on simple harmonic motion; wave motions, sound, light, and heat. Practical work in the physical laboratory; experiments illustrating the daily recitations, and some exact measurements, such as the determination of the candle power of gas and electric lights, index of refraction of glass prisms and lenses and of liquids, focal length of lenses; length of light waves. Photography. CHEMISTRY: Short course in chemical analysis.	Daniell's Principles of Physics. Ganot's Physics. Stewart's Treatise on Heat. Practical Physics, by Stewart and Gee. Kohlrausch's Physical Measurements. Lecture Notes.

THIRD YEAR—SECOND CLASS—Continued.

FIRST TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Modern Languages.</i>	1	4	FRENCH: Reading and translation of professional articles, and conversation.	Professional French Reader. Bellows's Pocket Dictionary.* Sauveur Petite Grammaire.* Langage Marin, Anglais-Français.
<i>Mechanical Drawing.</i>	2	4	MECHANICAL DRAWING: Drawing gearing; sketching machinery and making working drawings; round writing; tracings and blue prints of drawings; perspective.	Tomkin's Machine Construction.*

SECOND TERM.

<i>Seamanship, Naval Construction, and Naval Tactics.</i>	1	4	Course of the first term continued.	Same as for the first term.
<i>Astronomy, Navigation and Surveying</i>	2	4	THE CELESTIAL SPHERE: Spherical and rectangular co-ordinates; use of instruments, especially those for determining terrestrial latitudes and longitudes; refraction; dip; parallax; the earth, sun, planets, and solar system in general; different units of time and calendars; laws of universal gravitation, precession, nutation, and aberration; the moon; eclipses and occultations; tides; comets and meteoric bodies; fixed stars; nebulae; motion of the solar system; solutions of the astronomical triangle; use of the Nautical Almanac.	White's Astronomy; Chauvenet's Spherical and Practical Astronomy.* Bowditch's Navigator. American Ephemeris and Nautical Almanac.
<i>Steam Engineering.</i>	3½	4	Marine engines and boilers. Course for first term continued.	Sennett's Marine Steam Engine.
<i>Mechanics and Applied Mathematics.</i>	5	4	MECHANICS: Kinematics; dynamics; kinetics; hydromechanics; the motion of projectiles; friction and other resistances; the application of mechanical principles to simple machines and to instruments.	Bowser's Analytical Mechanics. Bowser's Hydromechanics.

THIRD YEAR—SECOND CLASS—Continued.

SECOND TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subject.	Text-books.
<i>Physics and Chemistry.</i>	4	4	<p>PHYSICS: Recitations in light and heat concluded.</p> <p>Electricity and magnetism commenced.</p> <p>Practical work in the physical laboratory; calibration of thermometers; determination of the hygrometric state of the atmosphere; measurements of the coefficients of expansion and the specific heat and latent heat of various substances; other experiments illustrating the course of study and leading to the skillful use of instruments of precision. Photography. General experiments illustrating the phenomena of statical and voltaic electricity; setting up and comparing galvanic cells and secondary batteries; measuring their resistance and electro-motive force; calibration of galvanometers; determination of dip and horizontal intensity.</p>	<p>Same as for the first term.</p> <p>Thompson's Electricity and Magnetism.</p> <p>Ayrton's Practical Electricity.</p> <p>Day's Exercises in Electrical Measurements.</p> <p>Lecture Notes.</p>
<i>Modern Languages.</i>	1	1½	<p>FRENCH: Reading French newspapers, and conversation on subjects of the day; themes and written translations.</p>	<p>Same as for the first term, and French newspapers.</p>

FOURTH YEAR—FIRST CLASS—LINE DIVISION.

FIRST TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
Seamanship, Naval Construction, and Naval Tactics.	3	4	<p>SEAMANSHIP: Uses of compass, lead, log, and sounding machines; principles of marlinspike seamanship, including cutting, fitting, and reeving rigging; description and uses of sails, their fittings and appliances; stowage and organization; management of boats; handling sails; management under sail and under steam; turning and maneuvering, wharfing, docking, towing, piloting, anchoring, mooring, etc.; emergencies; port drills and evolutions; duties of officers and crew; routine; rules of the road; laws of storms and management in cyclones; control of behavior among waves, and performance in general.</p> <p>NAVAL CONSTRUCTION: Definitions; history and practice of shipbuilding in wood, iron, and steel; systems of construction, subdivision, and armoring; systems of pumping, draining, ventilating, steering, and hoisting; fittings in general; distribution of armor, guns, and boats; special constructions; launching; types of ships; structural strength and strains; buoyancy and stability in the intact and the damaged conditions; theory and observation of waves; rolling and pitching; principles of stowage; resistance, propulsion, and steering of ships; qualities of ships; construction and use of diagrams of qualities; the use of qualities.</p> <p>NAVAL TACTICS: Organization of the fleet; school of the ship, section, and squadron; evolutions of the fleet; signaling by Army and Navy code; Navy and International codes of flag signals.</p>	<p>Luce's Seamanship. Special Notes and Drawings. Navy Department Pamphlets White's Manual of Naval Architecture. Thearle's Naval Architecture. Thearle's Theoretical Naval Architecture.</p> <p>Navy and International Signal Books. Fleet Drill Book, (Navy Department.) Welch's Text-book of Naval Architecture.</p>
Ordnance and Gunnery.	3	4	<p>ORDNANCE INSTRUCTIONS: Handling great guns; preparing ship for action; duties of officers and men when at quarters for exercise, and when engaged in battle; handling boat howitzers and machine guns afloat and on shore; landing of seamen and marines.</p>	<p>Ordnance Instructions. Text-book of Ordnance and Gunnery (Naval Academy publication). Gunnery Drill Book for the New Armaments. (Bureau of Ordnance publication.)</p>

FOURTH YEAR—FIRST CLASS—LINE DIVISION—Continued.

FIRST TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Ordnance and Gunnery—Continued.</i>			<p>INFANTRY TACTICS: School of the soldier; school of the company; school of the battalion; instruction for skirmishers.</p> <p>GUNNERY: The motion of projectiles in a non-resisting medium and in air; the methods of finding the trajectory, the remaining velocity, and the angle of fall; the dangerous space; sighting and pointing guns; the errors liable to occur in practice at sea, and the methods of avoiding them; the preparation of range tables, and corrections for jump and drift; the determination of ranges at sea.</p>	<p>Upton's Tactics.</p> <p>Text-book of Ordnance and Gunnery (Naval Academy publication).</p> <p>Exterior Ballistics (Naval Academy publication).</p> <p>Ordnance Notes, (Office of Naval Intelligence.)</p>
<i>Astronomy, Navigation, and Surveying.</i>	4	4	<p>THE THEORY AND PRACTICE OF NAVIGATION, including instruction in the duties of the navigator, the construction and use of navigating instruments, the use of tables, and the solution of problems; determination of meridian distances.</p> <p>THEORY OF THE DEVIATION OF THE COMPASS, including the nature and causes of the several parts of deviation, the determination of the vertical and horizontal forces of the earth and ship, the causes and amount of the heeling error, the changes which take place upon a change of geographical position, the graphic representations of the amount and direction of the forces which act on the needle, and the mechanical correction of the deviation and heeling errors.</p>	<p>Chauvenet's Spherical and Practical Astronomy.</p> <p>Walker's Navigation.</p> <p>Bowditch's Navigation.</p> <p>American Ephemeris and Nautical Almanac.</p> <p>*Admiralty Manual of the Deviations of the Compass.</p>
<i>Mechanics and Applied Mathematics.</i>	3	1	METHOD OF LEAST SQUARES: The theory of least squares and probable errors; fundamental principles of the theory; practical methods and formulas; independent observations; conditioned observations.	Johnson's Method of Least Squares.
	3	3	APPLIED MECHANICS: Elasticity; stress and strain; theory of structures; strength and deflection of beams; beams of uniform resistance.	Cotterill's Applied Mechanics.

FOURTH YEAR—FIRST CLASS—LINE DIVISION—Continued.

FIRST TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Physics and Chemistry.</i>	3	4	PHYSICS: Recitations in electricity and magnetism; practical work in physical laboratory; determination of the constants of galvanometers; testing ammeters and voltmeters; running dynamos and electric motors and measuring their efficiency; experiments on the electric transmission of energy; testing cables and electric light wires; experiments upon induction; practice in photography and micro photography.	Same as for the second class year. Lecture Notes.

SECOND TERM.

<i>Naval Warfare, Naval Instruction, and Naval Tactics.</i>	4	4	Course of the first term continued.	Same as for the first term.
<i>Ordnance and Gunnery.</i>	5	4	<p>GUNNERY: Accuracy and rapidity of fire; the probability of hitting objects of various forms; the mean and probable errors of guns; derivation of rules for correcting certain errors which arise in practice at sea; the penetration and effect of projectiles.</p> <p>ORDNANCE: The manufacture of guns; description of service guns; computation of the strength and shrinkage of guns; rifling; rotation and its influence on the motion of projectiles. The manufacture and use of gunpowder and other explosives; the force developed when explosives are fired in their own volume, and the equation of motion of the projectile in the bore of a gun on this hypothesis, and also on the hypothesis that the explosive burns progressively; the laws of burning of grains of gunpowder of various forms; the formulas of Noble and Abel connecting pressures with density of loading, and for determining the work of expansion in a gun; development of the principles involved in loading guns; formulas connecting muzzle velocities and pressures with the elements of loading.</p> <p>GUN CARRIAGES: Their construction and the mechanism employed in controlling and adjusting recoil, and the theory of such control.</p> <p>AMMUNITION: Its preparation and use.</p>	<p>Text-book of Ordnance and Gunnery (Naval Academy publication).</p> <p>The Elastic Strength of Guns (Naval Academy publication).</p> <p>Interior Ballistics (Naval Academy publication).</p> <p>Accuracy and Probability of Fire (Naval Academy publication).</p> <p>Nomenclature of steel B. L. R. guns and carriages and mounts for Hotchkiss guns. (Bureau of Ordnance.)</p>

FOURTH YEAR—FIRST CLASS—LINE DIVISION—Continued.

SECOND TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Astronomy, Navigation, and Surveying.</i>	4	4	<p>THEORY OF THE DEVIATION OF THE COMPASS, including the nature and causes of the several parts of the deviation, the determination of the vertical and horizontal forces of the earth and the ship, the causes and amount of the heeling error, the changes which take place upon a change of geographical position, the graphic representations of the amount and direction of the forces which act on the needle, and the mechanical correction of the deviation and the heeling errors. Navigation.</p> <p>HYDROGRAPHIC SURVEYING: The instruments used; selection and measurement of bases; determination of azimuth of base; triangulation; determination of heights; leveling; plotting a survey; hydrographical surveying; tidal observations; current observations; sailing directions; the form of the earth, with special reference to the construction of charts; projections; running surveys.</p>	<p>Admiralty Manual the Deviations the Compass.</p> <p>Chauvenet's Spherical and Practical Astronomy.*</p> <p>Phelps's Practical Marine Surveying. Projection Tables.</p>
<i>English Studies, History, and Law.</i>	2	4	<p>INTERNATIONAL LAW: The objects, sources, and sanctions of international law; the laws of war, embargo, reprisal, and retorsion; blockade; contraband of war; right of search; ship's papers and nationality; prizes; privateering; piracy; the rights and duties of neutrals; jurisdiction over vessels at sea and in territorial waters; fugitives and deserters; licenses to trade; recaptures.</p>	<p>Glass's Marine International Law.</p>
<i>Physiology and Hygiene.</i>	4	4	<p>PHYSIOLOGY AND HYGIENE: General description of the human body and its functions; the arrest of hemorrhage; resuscitation from drowning; alcoholic drinks, tobacco, and other narcotics. (Lectures and practical instruction, Fridays, 7.30 to 9.30 p. m., additional.)</p>	<p>Brown's Eclectic Physiology.</p>

FOURTH YEAR—FIRST CLASS—ENGINEER DIVISION.

FIRST TERM

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Seamanship, Naval Construction, and Naval Tactics.</i>	2	4	NAVAL CONSTRUCTION: Definitions; history and practice of shipbuilding in wood, iron, and steel; systems of construction, subdivision, and armoring; systems of pumping, draining, ventilating, steering, and hoisting; fittings in general: distribution of armor, guns and boats; special constructions; launching; types of ships; structural strength and strains; buoyancy and stability in the intact and in the damaged conditions; theory and observation of waves; rolling and pitching; principles of stowage; resistance, propulsion, and steering of ships; qualities of ships, construction and use of diagrams of qualities; the use of qualities.	White's Manual of Naval Architecture. Thearle's Naval Architecture. Thearle's Theoretical Naval Architecture. Welch's Text-book of Naval Architecture. Special Notes and Drawings.
<i>Steam Engineering.</i>	3	4	MARINE ENGINES: General description of modern marine engines and their dependencies; expansion of steam; piston speed and size of cylinders; uses and construction of parts of a marine engine; calculations on twisting and bending moments; principles and construction of condensers and pumps; types of valves and valve gear, and valve diagrams; principles and construction of various types of propellers; the indicator and its diagrams; power of an engine and calculations relating thereto. Objects of test trials; boiler trials and their results; friction of the engine and the dynamometer; standard methods and examples of engine trials.	Seaton's Marine Engineering. Thurston's Engine and Boiler Trials.
	2	4	BOILERS: Various types and efficiency of steam boilers; fuel, combustion, evaporation, and draught; construction of boilers in detail, and materials used; details of fittings and attachments; causes of decay; care and preservation of boilers.	Wilson's Steam Boilers. Shock's Steam Boilers.*

FOURTH YEAR—FIRST CLASS—ENGINEER DIVISION—Continued.

FIRST TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Steam Engineering—Continued.</i>	3	4	DESIGNING MACHINERY: The strains to which machinery is subjected and the resistance offered to these strains; relative value of materials used in machinery; testing materials; principles and considerations governing the design, drawing, specifications, and proportion of the various parts of engines and boilers, with practical application in the designing room.	Unwin's Elements of Machine Design. Wilson's Steam Boilers. Shock's Steam Boilers.*
<i>Mechanics and Applied Mathematics.</i>	3	4	Same as for the line division.	Same as for the line division.
<i>Physics and Chemistry.</i>	3	4	Same as for the line division.	Same as for the line division.

SECOND TERM.

<i>Seamanship, Naval Construction, and Naval Tactics.</i>	3	4	Course of the first term continued.	Same as for the first term.
<i>Steam Engineering.</i>	2	4	MARINE ENGINES: Continuation of first term course. Physical properties of steam; convertibility of heat and work; theory of the steam engine; air and heat engines; efficiency of an engine; theoretical considerations governing the expansion of steam; effects of clearance, wire drawing, jacketing, liquefaction and re-evaporation; experiments on the steam-engine, and the methods of determining its efficiency.	Seaton's Marine Engineering. Thurston's Engine and Boiler Trials. Cotterill's Steam Engine Considered as a Heat Machine.
	3	4	BOILERS: Course of the first term continued.	Same as for the first term.
	4	4	DESIGNING MACHINERY: Course of the first term continued.	Same as for the first term.
<i>Mechanics and Applied Mathematics.</i>	3	4	APPLIED MECHANICS: Kinematics and dynamics of machines; transmission and conversion of energy by fluids.	Cotterill's Applied Mechanics. Bowser's Hydro-mechanics.
<i>Physiology and Hygiene.</i>	$\frac{1}{2}$	4	Same as for the line division.	Same as for the line division.

ASSIGNMENT OF TIME.

Departments.	Fourth class.		Third class.		Second class.		First class, line division.		First class, engineer division.	
	1st term.	2d term.	1st term.	2d term.	1st term.	2d term.	1st term.	2d term.	1st term.	2d term.
Seamanship, Naval Construction, and Naval Tactics					1	1	3	4	2	3
Ordnance and Gunnery							3	5		
Astronomy, Navigation, and Surveying						2	4	4		
Steam Engineering					3	3			8	9
Mechanics and Applied Mathematics					5	5	3		3	3
Physics and Chemistry				5 F	4	4	3		3	
Mathematics	6	5	5	5						
English Studies, History, and Law ..	5	5	4					2		
Modern Languages	5	5½	3	2	1 F	½ F				
Mechanical Drawing			4	3½	2					
Physiology and Hygiene								½ F		½ F

F, Friday, 7.30 to 9.30 p. m.

PROGRAMME OF RECITATIONS.

FIRST TERM.

Departments.	Fourth class.	Third class.	Second class.	First class, line division.	First class, engineer division.
Astronomy, Navigation, and Surveying	M. T. W. Th. F. (2)	M. F. S. (1), T. (3)	.....	M. W. F. S. (1)	.....
English Studies, History, and Law	M. T. W. Th. F. S. (1)	M. T. W. Th. F. (2)	.....	.....	.....
Mathematics	.....	M. W. Th. F. (3)	T. (3), S. (1)	.....	.....
Mechanical Drawing	.....	.....	M. T. W. Th. F. (1)	M. W. F. (2)	M. W. F. (2)
Mechanics and Applied Mathematics	.....	.....	M. (2), F. (7.30 to 9.30 p.m.)*	.....	.....
Modern Languages	M. T. W. Th. F. (3)	T. W. Th. (1)	.....	T. Th. (2), F. (3)	.....
Ordnance and Gunnery	.....	.....	T. W. Th. F. (2)	M. (3), T. Th. (1)	M. T. Th. (1)
Physics and Chemistry	.....	.....	M. (3)	T. W. Th. (3)	T. W. (3)
Seamanship, Naval Construction, and Naval Tactics	.....	.....	W. Th. F. (3)	.....	{ W. F. S. (1), T. Th. (2), M. Th. F. (3). }
Steam Engineering	.....	.....	.....	.....	.....

SECOND TERM.

Departments.	Fourth class.	Third class.	Second class.	First class, line division.	First class, engineer division.
Astronomy, Navigation, and Surveying	.....	.....	W. F. (3)	M. T. Th. F. (1)	.....
English Studies, History, and Law	M. T. W. Th. F. (3)	.....	.....	W. (1), F. (2)	.....
Mathematics	M. T. W. Th. F. (1)	M. T. W. Th. F. (2)	.....	.....	.....
Mechanical Drawing	.....	M. (1), T. F. (3), S. (1)†	.....	.....	.....
Mechanics and Applied Mathematics	.....	.....	M. T. W. Th. F. (1)	.....	M. T. Th. (2)
Modern Languages	M. T. W. Th. F. (2), S. (1)†	W. Th. (3)	S. (1),†, F. (7.30 to 9.30 p.m.)*	.....	.....
Ordnance and Gunnery	.....	.....	.....	M. T. W. Th. (2), F. (3)	.....
Physics and Chemistry	.....	{ M. (3), T. W. Th. F. (1), } { F. (7.30 to 9.30 p.m.)* }	M. T. Th. F. (2)	.....	.....
Physiology and Hygiene	.....	.....	.....	S. (1) F. (7.30 to 9.30 p.m.)*	S. (1) F. (7.30 to 9.30 p.m.)*
Seamanship, Naval Construction, and Naval Tactics	.....	.....	W. (2)	.....	M. W. Th. (3)
Steam Engineering	.....	.....	M. T. Th. (3)	M. T. W. Th. (3)	{ M. T. W. Th. F. (1), W. F. (2), T. F. (3). }

* Lectures and practical instruction.

† Saturday period, second term, from January 31 to March 10.

TABLE OF COEFFICIENTS.

Department and subjects.	Fourth class.	Third class.	Second class.	First class, line division.	First class, engineer division.	Maxima for four years, line division.	Maxima for four years, engineer division.	Maxima for final graduation, line division.	Maxima for final graduation, engineer division.
Discipline	4	8	12	16	16	160	160		
<i>Seamanship, Naval Construction, and Naval Tactics.</i>									
Seamanship, Ship building, and Naval Tactics			3	13	8		44	56	32
Cruise Reports, Navigation Note Books, Journals, and Station Bills								24	36
Practice Cruise				2		72			
<i>Ordnance and Gunnery.</i>									
Ordnance Instructions, Infantry Tactics, and Gunnery									
Ordnance and Gunnery				} *15		60		44	
<i>Astronomy, Navigation, and Surveying.</i>									
Astronomy, Navigation, and Surveying			3	12			12	44	
Practice Cruise				2		68			
<i>Steam Engineering.</i>									
Steam Machinery, Marine Engines, and Boilers			8					20	
Summer Practical Work			3		5	44			
Marine Engines					10				88
Designing Machinery					12				
Boilers					8		184		56
<i>Mechanics and Applied Mathematics.</i>									
Differential and Integral Calculus, and Mechanics			12						
Least Squares and Strength of Materials				5	5	68			
Mechanics					5		88		
<i>Physics and Chemistry.</i>									
Chemistry and Physics		5							
Physics			10	5	5	80	80		
<i>Mathematics.</i>									
Algebra and Geometry	5								
Trigonometry, Analytical Geometry, and Descriptive Geometry		10				60	60		
<i>English Studies, History, and Law.</i>									
English and History	5								
English, History, and Law		4		4		52	36	24	
<i>Modern Languages.</i>									
French, Spanish, and German	5	5	3			52	52	28	28
<i>Mechanical Drawing.</i>									
Mechanical Drawing		6	3			36	36		
<i>Miscellaneous.</i>									
Physiology and Hygiene				2	2	8	8		
Maxima for each class	76	152	228	304	304	760	760	240	240

*In making up the standing for a year the second term is given double the weight of the first term.

PRACTICAL INSTRUCTION OF CADETS.

SEAMANSHIP.

Knotting and splicing; compass and lead line; ship nomenclature; cutting and fitting hemp rigging; cutting and fitting wire rigging; rowing, and the management of boats under oars and under sail; sail making; making up, bending, unbending, and handling sails; rigging ship; stripping ship; shifting spars; getting under way and anchoring; evolutions with vessels under sail and under steam; signaling, Army and Navy code; management of steam launches; steam fleet tactics with steam launches.

ORDNANCE AND GUNNERY.

Setting up drill; school of the soldier; school of the company; school of the battalion (infantry); skirmish drill; school of the battery; school of the battalion (artillery); exercises with broadside guns, pivot guns, monitor guns, boat howitzers, and machine guns; target practice with small-arms; target practice afloat with machine guns; rifled howitzers, Hotchkiss rapid-fire guns, and great guns; small-sword exercise; broad-sword exercise; bayonet exercise; handling and firing torpedoes; determination of the strength and elasticity of gun-metal with testing machine; determination of muzzle velocities with the Schultz chronoscope; determination of pressures in guns by means of pressure gauges; experimental determination of range tables, also of the jump and the drift; the preparation and inspection of ordnance material.

Two gold medals are awarded annually for marksmanship; one to the cadet of the first class who excels in great-gun practice, and one to the cadet of the second class who excels in practice with the service rifle and revolver.

In June, 1890, the great-gun medal was awarded to Cadet Claude Bailey, of Arkansas. The practice was from the steamer *Standish*, at ranges varying from 1,100 yards to 1,400 yards, with the Hotchkiss 3-pounder and 6-pounder rapid-fire guns. The best three scores were:

	Score.	Possible maximum.
Cadet Bailey.....	258	264
Cadet Coleman.....	234	252
Cadet Schofield.....	192	204

The scoring was on the service-vertical target.

In October, 1890, the small-arms medal was awarded to Cadet Davison, of Missouri. The targets used were the Army A and B for the Hotchkiss rifle, and a rectangle 18 by 24 inches for the revolver. The score was as follows:

	Distance.	Per cent. of the maximum.
	Yards.	
On shore, A target	170	70
From boat, B target	300	52
	Paces.	
Revolver, 18 by 24 inch target	30	91

ASTRONOMY, NAVIGATION, AND SURVEYING.

Practical navigation; surveying and constructing a chart of a portion of the Severn River.

Swinging an iron ship, and observing the deviations and the times of vibration of horizontal and vertical needles on different courses; from these observations finding the approximate and the exact co-efficients, and the horizontal and the vertical forces acting on the standard and steering compasses; also finding the heeling co-efficients for the same compasses without heeling the ship.

STEAM ENGINEERING.

Vise-bench work; forging; boiler-making; pattern-making; machine-tool work; taking apart and putting together engines; running engines of launches, vessels, and monitors.

PHYSICAL TRAINING.

Class drills in calisthenics, free movements and with apparatus.

Special exercises to promote symmetrical development when necessary. Athletic exercises, including boxing and swimming.

PROGRAMME OF PRACTICAL INSTRUCTION.

When more than one kind of exercise is prescribed during a week the number of each exercise is indicated by a figure in parenthesis.

FIRST CLASS.

Aca- demic months.	Weeks.	First division.	Second division.	Third division.	Fourth division.
Oct.....	1	Company (4). Monitor (1).	Company (4). Monitor (1).	Target great guns (4). Monitor (1).	Steam tactics (4). Monitor (1).
	2	Battery (4). Monitor (1).	Battery (4). Monitor (1).	Steam tactics (4). Monitor (1).	Target great guns (4). Monitor (1).
	3	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	4	Target great guns (4). Monitor (1).	Steam tactics (4). Monitor (1).	Company (4). Monitor (1).	Company (4). Monitor (1).
Nov.....	1	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	2	Steam tactics (4). Monitor (1).	Target great guns (4). Monitor (1).	Battery (4). Monitor (1).	Battery (4). Monitor (1).
	3	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	4	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
Dec'	1	Broadsword.	Steam.	Broadsword.	Steam.
	2	Steam.	Broadsword.	Steam.	Broadsword.
	3	Broadsword.	Steam.	Broadsword.	Steam.
	4				
Jan*	1	Steam.	Broadsword.	Steam.	Broadsword.
	2	Small sword.	Steam.	Practical ordnance.	Steam.
	3	Steam.	Small sword.	Steam.	Practical ordnance.
	4	Practical ordnance.	Steam.	Small sword.	Steam.
	5	SEMI-ANNUAL EXAMINATION.			
Feb*	1	Steam.	Practical ordnance.	Steam.	Small sword.
	2	Broadsword.	Steam.	Seamanship.	Steam.
	3	Steam.	Broadsword.	Steam.	Seamanship.
	4	Seamanship.	Steam.	Broadsword.	Steam.
Mar	1	Steam.	Seamanship.	Steam.	Broadsword.
	2	Deviat'n compass (4). Seamanship (1).	Deviat'n compass (4). Seamanship (1).	Deviat'n compass (4). Seamanship (1).	Deviat'n compass (4). Seamanship (1).
	3	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	4	General quarters.	General quarters.	General quarters.	General quarters.
April....	1	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	2	Target great guns (4). General quarters (1).	Skirmish (4). General quarters (1).	Steam tactics (4). General quarters (1).	Torpedoes (4). General quarters (1).
	3	Skirmish (4). Seamanship (1).	Target great guns (4). Seamanship (1).	Torpedoes (4). Seamanship (1).	Steam tactics (4). Seamanship (1).
	4	Steam tactics (4). Seamanship (1).	Torpedoes (4). Seamanship (1).	Target great guns (4). Seamanship (1).	Skirmish (4). Seamanship (1).
May.....	1	Torpedoes (4). General quarters (1).	Steam tactics (4). General quarters (1).	Skirmish (4). General quarters (1).	Target great guns (4). General quarters (1).
	2	Battal'n infantry (4). Seamanship (1).	Battal'n infantry (4). Seamanship (1).	Battal'n artillery (4). Seamanship (1).	Battal'n infantry (4). Seamanship (1).
	3	Battal'n artillery (3). Seamanship (3).	Battal'n artillery (3). Seamanship (3).	Battal'n artillery (3). Seamanship (3).	Battal'n artillery (3). Seamanship (3).
	4	Steam tactics (3). General quarters (3).	Steam tactics (3). General quarters (3).	Steam tactics (3). General quarters (3).	Steam tactics (3). General quarters (3).
	5				
	M.	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	T.	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	W.	General quarters.	General quarters.	General quarters.	General quarters.
	Th.	Steam tactics.	Steam tactics.	Steam tactics.	Steam tactics.
	F.	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	S.	Seamanship.	Seamanship.	Seamanship.	Seamanship.
June 1 to 10.	} ..	ANNUAL EXAMINATION.			
June 10 to Aug. 28.	} ..	Practice cruise.			

* During the months of December, January, and February, two (2) Saturday drill periods are devoted to battalion infantry, in place of the schedule detail drills.

SECOND CLASS.

Aca demic months.	Weeks.	First division.	Second division.	Third division.	Fourth division.
Oct.....	1	Company.	Company.	Target machine guns	Steam launches.
	2	Battery.	Battery.	Steam launches.	Target machine guns
	3	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	4	Target machine guns	Steam launches.	Company.	Company.
Nov.....	1	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	2	Steam launches.	Target machine guns	Battery.	Battery.
	3	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	4	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
Dec*.....	1	Small sword.	Steam.	Navy signals.	Steam.
	2	Steam.	Small sword.	Steam.	Navy Signals.
	3	Navy signals.	Steam.	Small sword.	Steam.
	4				
Jan*.....	1	Steam.	Navy signals.	Steam.	Small sword.
	2	Broadsword.	Steam.	Signals.	Steam.
	3	Steam.	Broadsword.	Steam.	Signals.
	4	Signals.	Steam.	Broadsword.	Steam
	5	SEMI-ANNUAL EXAMINATION. •			
Feb*.....	1	Steam.	Signals.	Steam.	Broadsword.
	2	Small sword.	Steam.	Practical ordnance.	Steam.
	3	Steam.	Small sword.	Steam.	Practical ordnance.
	4	Practical ordnance.	Steam.	Small sword.	Steam.
Mar....	1	Steam.	Practical ordnance	Steam.	Small sword.
	2	Broadsword (4).	Broadsword (4).	Broadsword (4).	Broadsword (4)
	3	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	4	Seamanship.	Seamanship.	Seamanship.	Seamanship.
April....	1	General quarters.	General quarters.	General quarters.	General quarters.
	2	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	3	Target great guns (4).	Skirmish (4).	Steam tactics (4).	Small sword (4).
	4	General quarters (1).	General quarters (1).	General quarters (1).	General quarters (1).
	5	Skirmish (4).	Target great guns (4).	Small sword (4).	Steam tactics (4).
	6	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	7	Steam tactics (4).	Small sword (4).	Target great guns (4).	Skirmish (4).
	8	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
May.....	1	Small sword (4).	Steam tactics (4).	Skirmish (4).	Target great guns (4).
	2	General quarters (1).	General quarters (1).	General quarters (1).	General quarters (1).
	3	Battal'n infantry (4).	Battal'n infantry (4).	Battal'n infantry (4).	Battal'n infantry (4).
	4	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	5	Battal'n artillery (3).	Battal'n artillery (3).	Battal'n artillery (3).	Battal'n artillery (3).
	6	Seamanship (3).	Seamanship (3).	Seamanship (3).	Seamanship (3).
	7	Seamanship (3).	Seamanship (3).	Seamanship (3).	Seamanship (3).
	8	General quarters (3).	General quarters (3).	General quarters (3).	General quarters (3).
	9				
	10	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	11	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	12	General quarters.	General quarters.	General quarters.	General quarters.
	13	Small sword.	Small sword.	Small sword.	Small sword.
	14	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	15	Seamanship.	Seamanship.	Seamanship.	Seamanship.
June 1 to 10	{	ANNUAL EXAMINATION.			

* During the months of December, January, and February, two (2) Saturday drill periods are devoted to battalion infantry, in place of the schedule detail drills.

SECOND CLASS.

Summer months.	Weeks.	First division.	Second division.	Third division.	Fourth division.
	1	Machine shop a. m. Target machine guns p. m.	Machine shop a. m. Howitzers afloat p. m.	Machine shop a. m. Signals p. m.	Machine shop a. m. Target howitzers p. m.
	2	Machine shop a. m. Target howitzers p. m.	Machine shop a. m. Target machine guns p. m.	Machine shop a. m. Howitzers afloat p. m.	Machine shop a. m. Signals p. m.
	3	Machine shop a. m. Signals p. m.	Machine shop a. m. Target howitzers p. m.	Machine shop a. m. Target machine guns p. m.	Machine shop a. m. Howitzers afloat p. m.
	4	Running steam cutters a. m. Howitzers afloat p. m.	Running steam cutters a. m. Signals p. m.	Running steam cutters a. m. Target howitzers p. m.	Running steam cutters a. m. Target machine guns p. m.
	5	Machine shop a. m. Boats p. m.	Machine shop a. m. Boats p. m.	Machine shop a. m. Boats p. m.	Machine shop a. m. Boats p. m.
	6	Machine shop a. m. Target great guns p. m.	Machine shop a. m. Target small arms p. m.	Machine shop a. m. Boats p. m.	Machine shop a. m. Steam tactics p. m.
	7	Machine shop a. m. Steam tactics p. m.	Machine shop a. m. Target great guns p. m.	Machine shop a. m. Target small arms p. m.	Machine shop a. m. Boats p. m.
	8	Machine shop a. m. Boats p. m.	Machine shop a. m. Steam tactics p. m.	Machine shop a. m. Target great guns p. m.	Machine shop a. m. Target small arms p. m.
	9	Machine shop a. m. Target small arms p. m.	Machine shop a. m. Boats p. m.	Machine shop a. m. Steam tactics p. m.	Machine shop a. m. Target great guns p. m.
	10	Machine shop a. m. Boats p. m.	Machine shop a. m. Boats p. m.	Machine shop a. m. Boats p. m.	Machine shop a. m. Boats p. m.

THIRD CLASS.

Academic Months.	Weeks.	First division.	Second division.	Third division.	Fourth division.
Oct.....	1	Company.	Company.	Boats.	Boats.
	2	Battery.	Battery.	Boats.	Boats.
	3	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	4	Boats.	Boats.	Company.	Company.
Nov.....	1	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	2	Boats.	Boats.	Battery.	Battery.
	3	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	4	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
Dec*	1	Small sword.	Seamanship.	Broadside guns.	Rigging loft.
	2	Rigging loft.	Small sword.	Seamanship.	Broadside guns.
	3	Broadside guns.	Rigging loft.	Small sword.	Seamanship.
	4				
Jan*.....	1	Seamanship.	Broadside guns.	Rigging loft.	Small sword.
	2	Small sword.	Target small arms.	Pivot guns.	Rigging loft.
	3	Rigging loft.	Small sword.	Target small arms.	Pivot guns.
	4	Pivot guns.	Rigging loft.	Small sword.	Target small arms.
	5	SEMI-ANNUAL EXAMINATION.			
Feb*	1	Target small arms.	Pivot guns.	Rigging loft.	Small sword.
	2	Small sword.	Target pistol.	Army signals.	Rigging loft.
	3	Rigging loft.	Small sword.	Target pistol.	Army signals.
	4	Army signals.	Rigging loft.	Small sword.	Target pistol.
Mar.....	1	Target pistol.	Army signals.	Rigging loft.	Small sword.
	2	Company (4).	Company (4).	Company (4).	Company (4).
	3	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	4	Seamanship.	Seamanship.	Seamanship.	Seamanship.
April.....	1	General quarters.	General quarters.	General quarters.	General quarters.
	2	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	3	Target sm'll arms(4).	Skirmish (4).	Seamanship (4).	Boats (4).
	4	General quarters (1).	General quarters (1).	General quarters (1).	General quarters (1).
	5	Skirmish (4).	Target sm'll arms(4).	Boats (4).	Seamanship.
	6	Seamanship (1).	Seamanship (1).	Seamanship (1).	
	7	Seamanship.	Boats (4).	Target sm'll arms(4).	Skirmish (4).
May.....	1	Boats (4).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	2	General quarters (1).	Seamanship (4).	Skirmish (4).	Target sm'll arms(4).
	3	Battal'n infantry (4).	General quarters (1).	General quarters (1).	General quarters (1).
	4	Seamanship (1).	Battal'n infantry (4).	Battal'n infantry (4).	Battal'n infantry (4).
	5	Battal'n artillery (3).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	6	Seamanship (3).	Battal'n artillery (3).	Battal'n artillery (3).	Battal'n artillery (3).
	7	Small sword (3).	Seamanship (3).	Seamanship (3).	Seamanship (3).
	8	General quarters (3).	Small sword (3).	Small sword (3).	Small sword (3).
	9		General quarters (3).	General quarters (3).	General quarters (3).
	10				
	11	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	12	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	13	General quarters.	General quarters.	General quarters.	General quarters.
	14	Boats.	Boats.	Boats.	Boats.
	15	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	16	Seamanship.	Seamanship.	Seamanship.	Seamanship.
June 1 to 10.	ANNUAL EXAMINATION.				
June 10 to Aug. 28	Practice cruise.				

* During the months of December, January, and February two (2) Saturday drill periods are devoted to battalion infantry in place of the schedule detail drills.

FOURTH CLASS

Academic Months.	Weeks.	First division.	Second division.	Third division.	Fourth division.
Oct.....	1	Company.	Company.	Boats.	Boats.
	2	Battery.	Battery.	Boats.	Boats.
	3	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	4	Boats.	Boats.	Company.	Company.
Nov.....	1	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	2	Boats.	Boats.	Battery.	Battery.
	3	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	4	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
Dec*....	1	Dancing.	Gymnastics.	Broadside guns.	Rigging loft.
	2	Rigging loft.	Dancing.	Gymnastics.	Broadside guns.
	3	Pivot guns.	Rigging loft.	Dancing.	Gymnastics.
Jan*....	4				
	1	Gymnastics.	Pivot guns.	Rigging loft.	Dancing.
	2	Dancing.	Gymnastics.	Pivot guns.	Rigging loft.
	3	Rigging loft.	Dancing.	Gymnastics.	Pivot guns.
	4	Broadside guns.	Rigging loft.	Dancing.	Gymnastics.
	5	SEMI-ANNUAL EXAMINATION.			
Feb*....	1	Gymnastics.	Broadside guns.	Rigging loft.	Dancing.
	2	Dancing.	Gymnastics.	Dancing.	Rigging loft.
	3	Rigging loft.	Dancing.	Gymnastics.	Dancing.
	4	Dancing.	Rigging loft.	Dancing.	Gymnastics.
Mar.....	1	Gymnastics.	Dancing.	Rigging loft.	Dancing.
	2	Company (4).	Company (4).	Company (4).	Company (4).
	3	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	4	General quarters.	General quarters.	General quarters.	General quarters.
April....	1	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	2	Gymnastics (4).	Skirmish (4).	Seamanship (4).	Boats (4).
	3	General quarters (1).	General quarters (1).	General quarters (1).	General quarters (1).
	4	Skirmish (4).	Gymnastics (4).	Boats (4).	Seamanship.
	5	Seamanship (1).	Seamanship (1).	Seamanship (1).	
May.....	1	Boats (4).	Seamanship (1).	Gymnastics (4).	Skirmish (4).
	2	General quarters (1).	Seamanship (4).	Seamanship (1).	Seamanship (1).
	3	Battal'n infantry (4).	General quarters (1).	Skirmish (4).	Gymnastics (4).
	4	Seamanship (1).	Battal'n infantry (4).	General quarters (1).	General quarters (1).
	5	Battal'n artillery (3).	Seamanship (1).	Battal'n infantry (4).	Battal'n infantry (4).
	6	Seamanship (3).	Battal'n artillery (3).	Seamanship (1).	Seamanship (1).
	7	Seamanship (3).	Seamanship (3).	Battal'n artillery (3).	Battal'n artillery (3).
	8	General quarters (3).	Seamanship (3).	Seamanship (3).	Seamanship (3).
	9		General quarters (3).	General quarters (3).	General quarters (3).
	10	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	11	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	12	General quarters.	General quarters.	General quarters.	General quarters.
	13	Boats.	Boats.	Boats.	Boats.
	14	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	15	Seamanship.	Seamanship.	Seamanship.	Seamanship.
June 1 to 10.	ANNUAL EXAMINATION.				
June 10 to Aug. 28.					
Sept.....	1	Practice cruise.			
	2	School of soldier.†	School of soldier.†	School of soldier.†	School of soldier.†
	3	School of soldier.†	School of soldier.†	School of soldier.†	School of soldier.†
	4	Sch. sec. howitzer.	Sch. sec. howitzer.	Sch. sec. howitzer.	Sch. sec. howitzer.
	5	School of soldier.†	School of soldier.†	School of soldier.†	School of soldier.†
	6	Sch. sec. howitzer.	Sch. sec. howitzer.	Sch. sec. howitzer.	Sch. sec. howitzer.

* During the months of December, January, and February two (2) Saturday drill periods are devoted to battalion infantry in place of the schedule detail drills.

†Swimming daily.

SUMMARY OF PRACTICAL INSTRUCTION.

Kind of instruction.	During the academic year.				Total number of instructions during academic year.	During summer months.				Total number of instructions, exclusive of practice of practice cruise.
	First class.	Second class.	Third class.	Fourth class.		First class.	Second class.	Third class.	Fourth class.	
Seamanship, including stripping and rigging <i>Wyoming</i>	33	30	37	35	135	(*)	.....	(*)	(*)	135
Rigging loft .....	.....	.....	15	15	30	.....	.....	.....	.....	30
Boats under oars, or sail .....	.....	.....	15	15	30	(*)	15	(*)	(*)	45
Naval tactics with steam launches	12	4	.....	.....	16	.....	5	.....	.....	21
Navy signals, day .....	.....	5	.....	.....	5	(*)	3	.....	.....	8
Navy signals, night .....	.....	.....	.....	.....	.....	(*)	3	.....	.....	3
Army signals, day .....	.....	5	5	.....	10	.....	2	.....	.....	12
Army signals, night .....	.....	.....	.....	.....	.....	.....	2	.....	.....	2
Monitor, with great gun practice	4	.....	.....	.....	4	.....	.....	.....	.....	4
General quarters	7	7	7	7	28	(*)	.....	(*)	(*)	28
General quarters, with target practice	4	4	4	4	16	(*)	.....	(*)	(*)	16
Target practice, great guns	8	4	.....	.....	12	.....	5	.....	.....	17
Pivot guns .....	.....	.....	5	5	10	.....	.....	.....	.....	10
Broadside guns .....	.....	.....	5	5	10	(*)	.....	(*)	(*)	10
Torpedoes	4	.....	.....	.....	4	.....	.....	.....	.....	4
Practical ordnance	5	5	.....	.....	10	.....	.....	.....	.....	10
Howitzers afloat .....	.....	.....	.....	.....	.....	.....	5	.....	.....	5
Target practice, howitzers .....	.....	.....	.....	.....	.....	.....	5	.....	.....	5
School of section .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
School of battery	4	5	5	5	19	.....	.....	.....	10	10
School of battalion artillery	9	9	9	9	36	.....	.....	.....	.....	19
Target practice, machine guns .....	.....	5	.....	.....	5	.....	5	.....	.....	36
Target practice, small-arms .....	.....	.....	9	.....	9	.....	5	.....	.....	10
Target practice, pistols .....	.....	.....	5	.....	5	.....	.....	.....	.....	14
School of the soldier .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
School of the company	4	5	9	9	27	.....	.....	.....	24	24

* Practice cruise.

SUMMARY OF PRACTICAL INSTRUCTION--Continued.

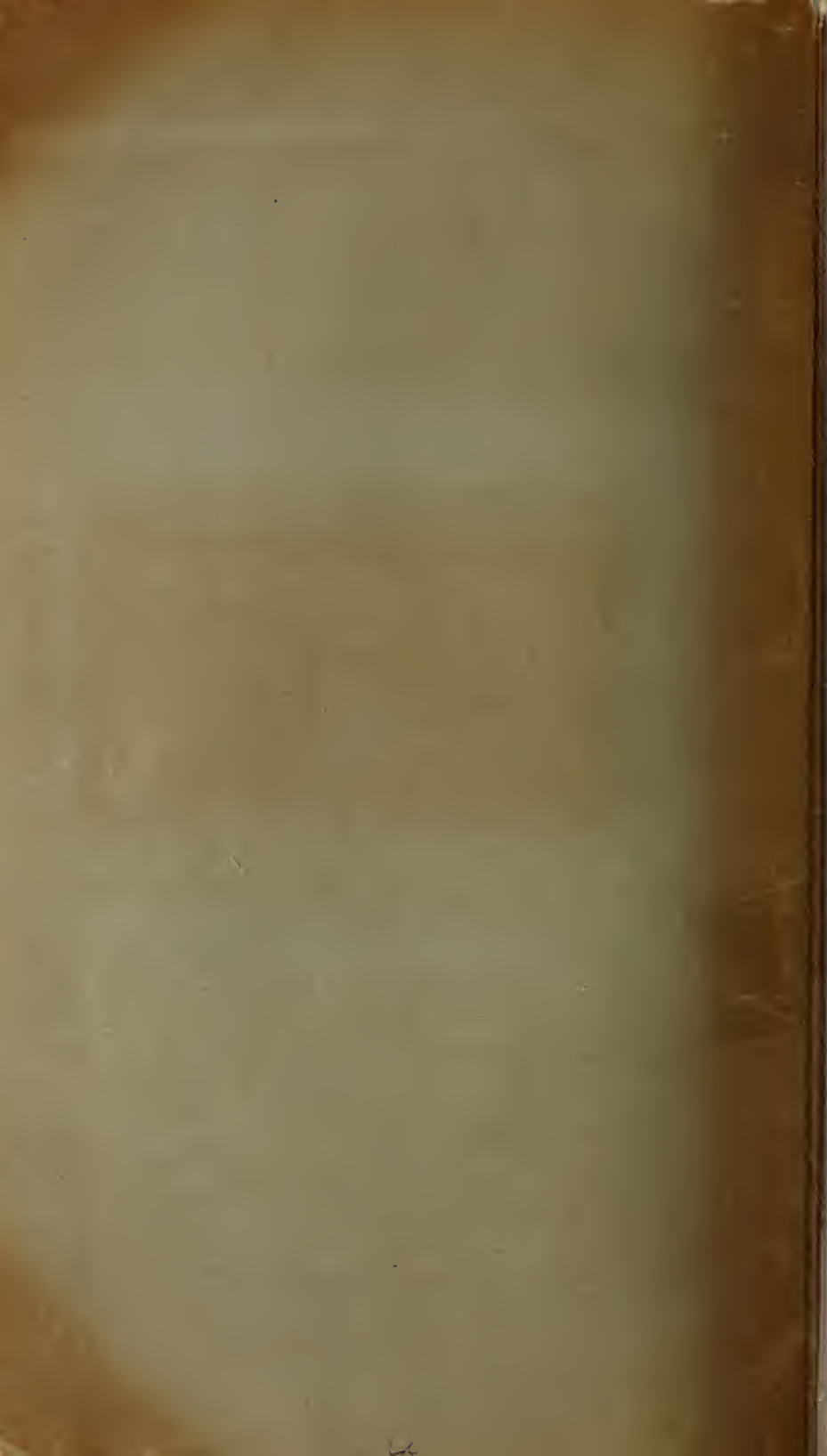
Kind of instruction.	During the academic year.				Total number of instructions during academic year.	During summer months.				During month of September, fourth class.	Total number of instructions, exclusive of practice cruise.
	First class.	Second class.	Third class.	Fourth class.		First class.	Second class.	Third class.	Fourth class.		
School of the battalion, infantry.....	11	11	11	11	44						44
Skirmish drill.....	4	4	4	4	16						16
Broad sword.....	15	9			24						24
Small sword.....	5	15	18		38						38
Practical instruction in deviation of compass.....	4				4	(*)					4
Practical instruction, navigation.....	† 14	† 13				(*)					† 27
Practical instruction, surveying.....	† 10										† 10
Machine-shop and running shop engines.....	30 and † 13	30			60		54				114 and † 13
Running steam launches.....		5			5		6				11
Practical instruction in chemistry.....			† 13								† 13
Gymnastics and boxing.....				19	19						19
Swimming.....										24	24
Dancing.....				20	20						20

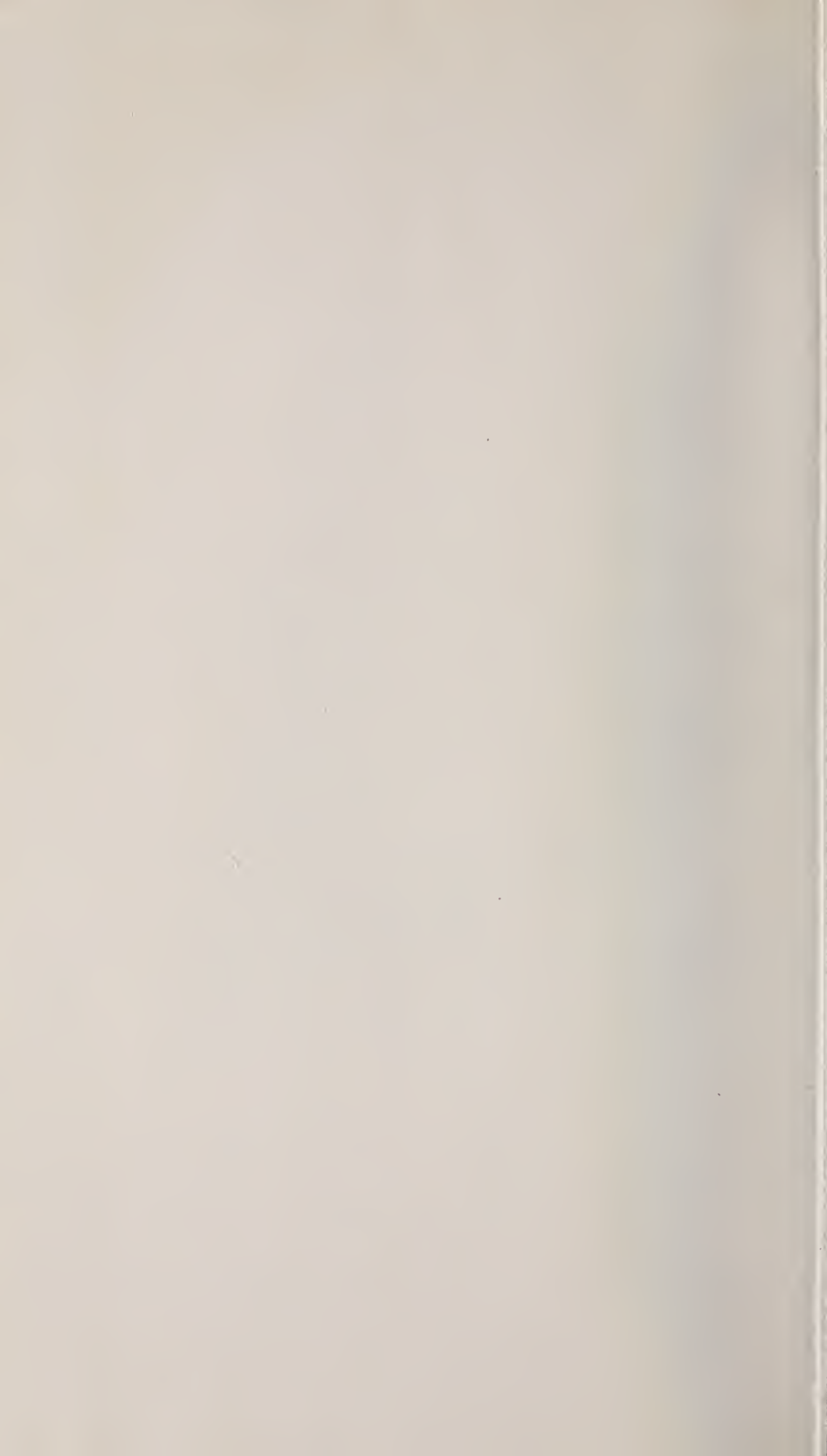
* Practice cruise.

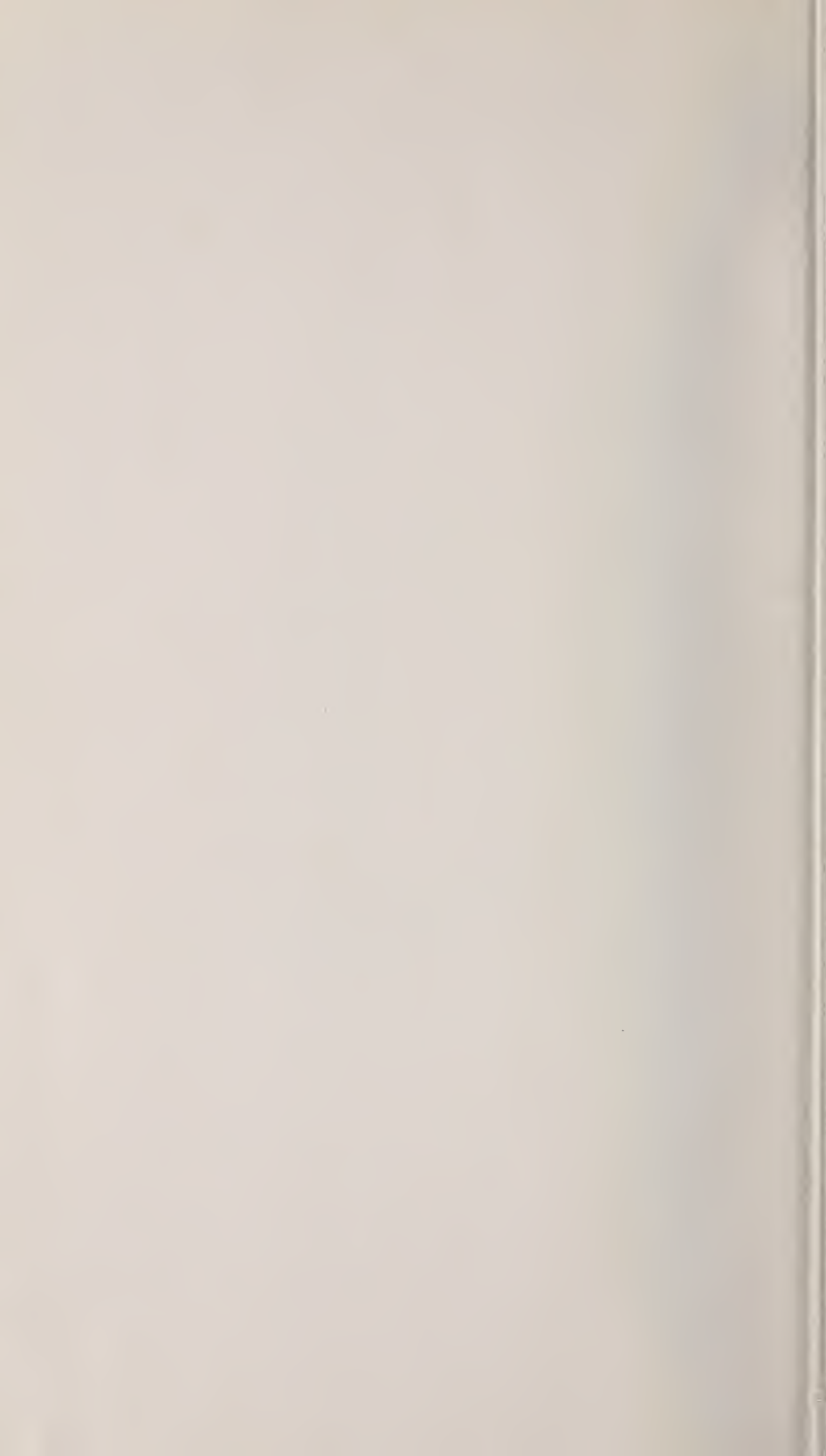
† Study periods.

The instructions in seamanship and gunnery on board of the *Wyoming*, *Passaic*, and *Standish* are also made instructions in running and managing the engines and boilers of those vessels. The instructions in naval tactics are also made instructions in running and managing the engines and boilers of the steam launches when practicable.









Annual register

1890-1891

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